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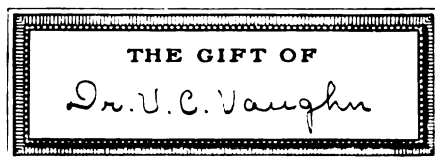
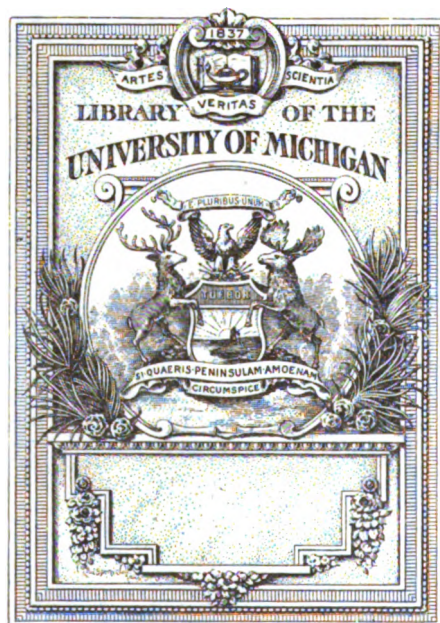
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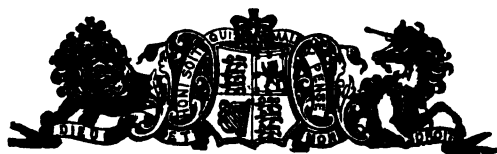
SEVENTH ANNUAL REPORT
—OF THE—
PROVINCIAL
BOARD OF HEALTH
—OF—
ONTARIO.
—
1888.



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SEVENTH ANNUAL REPORT
OF THE
PROVINCIAL BOARD OF HEALTH.
OF ONTARIO.
BEING FOR THE YEAR
1888.

PRINTED BY ORDER OF THE LEGISLATIVE ASSEMBLY.



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SEVENTH ANNUAL REPORT

OF THE

PROVINCIAL BOARD OF HEALTH

TO SIR ALEXANDER CAMPBELL, K.C.M.G.,
Lieutenant-Governor of the Province of Ontario.

May it Please Your Honour :

In presenting for your consideration the seventh annual report of the Provincial Board of Health, I shall, as has been customary in the reports of my predecessors, make a few remarks regarding the progress of sanitary reform, the Board's present position, and its prospective work.

The work of the past year has been very gratifying, abundant evidence being repeatedly furnished of the beneficial results flowing from extensive diffusion of sanitary information by means of pamphlets, sanitary conventions, and such other means as, to this Board have, from time to time, seemed best suited to accomplish the end in view, viz., the education of the people in regard to the best means of preventing or limiting the spread of epidemic contagious disease.

Under the authority of the excellent sanitary legislation which our Government and the Legislature have seen fit, in their wisdom, to adopt the work of the organization of Local Health authorities goes bravely on, there being at present no less than 520 Local Boards of Health and some 350 Medical Health Officers throughout the Province, all more or less actively engaged in performing their duties by perfecting their local sanitary arrangements for the prevention of disease among the people of their several localities.

In numerous instances, during the past few years, many of these local organizations have been suddenly called upon to cope with serious outbreaks of disease, and the prompt, systematic and energetic manner in which they have undertaken the task assigned them has invariably resulted in rapidly stamping out such epidemic outbreaks. In their efforts to carry on the good work, in which they are engaged, many of these Health Officers are frequently meeting with difficulties in determining the causes of outbreaks of disease, whether from bad water, foul air, impure foods, etc., and, in consequence of these difficulties, appeals are frequently made to the Provincial Board of Health for assistance in removing them. In order to meet this urgent want, in some measure, and to assist and encourage Health Officers, who are faithfully, and, generally without compensation, endeavoring to discharge their duties in their respective localities, it is desirable that this Board should be furnished with the means wherewith to carry on practical experimental work in Bacteriology, and in testing the purity of specimens of water, air, food, etc., which are from time to time sent by Local Health Officers. In this way the usefulness of this Board would be very much increased by, in many instances, furnishing the necessary information to assist in limiting the spread of outbreaks of disease. This desirable end could be obtained here by a comparatively small outlay for the necessary apparatus and by making such arrangements as would enable the executive officer of this Board to devote his entire time to sanitary work. Many valuable lives would be, no doubt, saved and much unnecessary suffering and disease would doubtless be avoided by such a course of

action. From the information obtained by experimental work of this kind, many outbreaks of contagious diseases among valuable animals might also be avoided, or cut short and speedily stamped out.

It is gratifying to note the extent to which the inspection of milk is being more or less thoroughly carried out in many places. Milk is so very susceptible of contamination, and from such a variety of sources that the importance of using every effort to ensure the purity of this most important article of food, is very great.

The increasing interest that is being manifested in the great question of the disposal of the sewage of our cities and towns is strongly indicative of the progress which is being made in the direction of sanitary reform. Several of our towns have constructed systems of sewerage and others have the matter under consideration. The Town of Brockville has been the first to construct what is known as the *separate* system, that by which the sewage, and the storm water are carried by separate pipes and the example of Brockville will doubtless, as it deserves, be followed by other towns in the near future. The Government has established a system of sewerage at the Asylum for the Insane, at London, known as the *intermittent downward filtration* plan, which will thoroughly test the system in a practical manner in our Province and if successful, as it can scarcely fail to be, will give an impetus to the construction of sewerage works and the proper disposal of the sewage of our cities and towns, which is in many instances most urgently called for.

Much interest has, of late, also been manifested in the vital question of an abundant supply of pure water to the people in our cities, towns and villages, and it cannot receive more attention than it deserves. It is highly necessary, in the interest of public health, to substitute a supply, for that now so generally derived from wells which are so frequently rendered impure by surface contaminations from the filth by which the ground in their immediate vicinity becomes saturated when proper precautions for its removal are not observed. A number of our towns have recently established excellent systems of waterworks, and others have plans for their establishment now under consideration.

The subject of compulsory notification of the existence of contagious diseases and also that of isolation hospitals, was so very fully and ably discussed by our secretary in the sixth annual report of this Board, that little more need be said regarding it, but the importance of the subject and the desirability of having isolation hospitals established as rapidly and as extensively as possible throughout the various municipalities of the Province will be my excuse for reiterating to some extent what has already been said. Upon the occurrence of a case of contagious disease in a municipality where the system of notification is promptly and fully carried out, the fact immediately becomes known to the authorities. The importance of promptly isolating first cases as a means of preventing the spread of the disease cannot be over-estimated. In no other way can first cases be so completely isolated and the spread of infectious diseases be so effectually prevented as by the immediate removal of such cases to properly constructed isolation hospitals. Not only is the separation of the sick from the healthy rendered complete by this method, but the sick are afforded a better chance of recovery than they can possibly have in the houses of most poor people, the hospital affording better ventilation and other hygienic surroundings, in addition to other advantages, than the houses already referred to. Moreover, instead of the healthy members of the family being shut up in their own premises in close proximity with those that are sick, and a condition of non-intercourse with the public enforced for a long period, as would be the case were the hospital not to be resorted to, they may be permitted after a comparatively short time to mingle with their neighbors and resume their occupations for the purpose of earning the means of support for themselves and those that are ill. Municipalities will, in such cases, be in a great measure relieved from the necessity which often exists, of contributing directly to the support of such families during the continuance of the illness, the sick will be placed in a condition favorable to recovery, and the healthy will be freed from liability to contract the disease. By the removal of cases of contagious diseases to isolation hospitals and their treatment therein, the process of stamping out the disease will be rapid and complete.

FRANCIS RAE,
Chairman.

REPORT OF THE SECRETARY.

To the Chairman and Members of the Provincial Board of Health :

GENTLEMEN,—It is with satisfaction that I have the honour to recall for your consideration the work undertaken by the Board during the past year, and to congratulate you in being able to contemplate with satisfaction the present position of the Province in the matter of public health; for, notwithstanding the fact that infectious diseases have appeared in a very considerable number of instances, they have not except in one or two localities, gained more than a temporary foothold. That this result is wholly or mainly due to the direct work of your Board it would not be correct to state, but that the advances in public health work, which have become manifest throughout the Province, are in large measure due to the compact organization which has been created by legislation, persistently recommended by you and passed by the Legislature, can fairly be affirmed without danger of contradiction. What the character of the subjects is, which have been discussed by you during the past year, will be fully set forth in the various reports following this *resumé* of work; while the varied nature of the work instituted and completed by the numerous Local Boards throughout the Province, is exhibited in the Appendices attached to the report proper.

Another subject which I would refer to with unmingled satisfaction as an evidence of the growing interest and importance of the work, which your Board, as regards the governmental branch, may be said to be the exponent of, is the Association of Executive Health Officers of Ontario, and the work performed by it during the year at its two semi-annual meetings, held in Toronto and Lindsay. Instituted in 1886, this organization has gradually increased in numbers and in the practical character of the subjects discussed by it. It is not too much to say that the grasp shown in the discussions, both of the difficulties to be overcome in executive health work and of the measures by which they are to be surmounted, is most complimentary to the professional standing of the Medical Executive Officers, and the *esprit* and enthusiasm with which they have undertaken the arduous and often disagreeable tasks which are associated with the duties of a health officer. There are, as far as I know, no members of the community who are engaged in a work more benevolent in its character, so arduous in its nature and less likely to be of financial benefit to those engaged. Distinct from the idea of *curative* Medicine as a mere profession or business, it takes on the intensive character of a duty to humanity, and places workers in this field in touch with those broad principles which are the guide and aim of the philanthropist and true statesman. Of such it may truly be said :

“ *Virtus, repulsæ nescia sordide,
Intaminatis fulget honoribus.* ”

The cordial coöperation which for several years past has existed between the executive officer of your Board and those of sister Provinces and neighbouring States, in all public health matters having a more than provincial bearing, still continues. In May last, delegated by you, your secretary attended the Conference of State Boards held in Cincinnati, and took part in the deliberations of that body. Quarantine matters received a large amount of attention, and it was with pleasure that your officer was able to state that the Dominion Government had acceded in large measure to the requests of the Boards of Quebec and Ontario that the St. Lawrence quarantine be fully equipped for the responsible work placed upon it. From the report thereon by Dr. C. W. Covernton, found on a later page, it will be seen that the indefatigable chief of this service, Dr.

Fred. Montizambert, has had ample opportunity given him for carrying on an extended and thorough inspection service during the past year. Through the efforts of your secretary, Dr. C. N. Hewitt, President of the American Public Health Association and Secretary of the State Board of Minnesota, was induced to be present at the summer session of the Executive Health Officers' Association, and to visit and inspect our St. Lawrence quarantine. When it is stated, as was done by him at the Milwaukee meeting of the American Public Health Association, that it compares favorably with all that has been said of the New Orleans quarantine station, we may rest assured that we have at the gateway of Ontario a barrier which may be said to protect us almost completely against the introduction from foreign countries of infectious disease.

Your secretary further took part in this Conference by discussing in a brief paper the subject of Isolation Hospitals, referred to at some length in the report for 1887. Those officers from States most advanced in public health measures strongly supported both the necessity for and practicability of such hospitals, both for urban and rural districts. The outbreaks of smallpox, which have appeared at different times and localities in New York State, further indicate the necessity for close and constant relationships between the officers of neighbouring States and Provinces. As will appear in the report on smallpox in Buffalo, the courteous treatment of your secretary by the Health Officer of Buffalo made it possible for him to maintain in the Medical Inspector, Dr. Lehmann, appointed by the Board, a close observation, of the first importance to the safety of this Province, of the progress of the epidemic in that place. While it would be too much to say that had the Inspector been retained longer in Buffalo, the introduction of the disease in December into Southwold Township, which has had such lamentable results, would have been prevented, yet it is satisfactory to be able to state that during the period, the worst in the history of the epidemic, in which Dr. Lehmann was stationed in Buffalo, no single instance occurred of the introduction of the disease into Ontario.

The reciprocal notification of outbreaks by your Board and that of the Province of Quebec has served to maintain a happy understanding between the two, further cemented by the presence of the Quebec chairman and secretary, Drs. Lachapelle and Pelletier, at the Lindsay meeting of Executive Health Officers.

I. OUTBREAKS OF CONTAGIOUS DISEASES.

Smallpox.—Referring in a more detailed manner to the special matters which the Board has had to deal with during the year, that of outbreaks of contagious diseases deserves our first attention. In Philadelphia and New York cases of smallpox had appeared early in the year, their number in the first-named city having, by April, increased to the degree that the disease might be called epidemic. Prompt notification by Dr. Benjamin Lee, Secretary of the State Board, was given week by week, and evidence went to show that the city authorities were earnest in their endeavors to stamp out the disease. The separation of New York city from the general control exercised by the State Board of Health, made it impossible for this Board to obtain accurate information regarding the actual state of affairs, except in so far as the city death returns gave the number of weekly victims of this disease. Cases from this State were introduced both into the Province of Quebec and this Province. The cases in Ontario occurred in the County of Dundas, in the township of Winchester, and were introduced by a horse dealer who had been exposed while in New York. The cases fortunately were early diagnosed, and the disease was limited to the family in which it first broke out. Owing to the strict supervision exercised at the St. Lawrence quarantine, the usual cases imported, introduced in the persons of immigrants, were absent this year; and the next source of danger was from Buffalo, where the disease had been introduced in July in the person of a Polish immigrant, who had brought clothing through the New York quarantine in an infected condition. The details in connection with this outbreak will be best gathered from the following report on the subject presented to the Board:

OCTOBER 10th, 1888.

To the Chairman and Members of the Provincial Board of Health:

GENTLEMEN,—During the past six months newspapers have reported numerous cases of smallpox in Philadelphia and New York, several outbreaks in Toronto, and since July a very considerable number of cases in Buffalo. According to newspaper reports cases occurred in Toronto about the 12th of July, on Yorkville Avenue. Information obtained from Dr. Edward Clark, Medical Health Officer, Buffalo, on July 26th states that up to that date nine cases and one death had occurred, eight of them being amongst the Polish people of East Buffalo. The letter further stated that 16,000 people had been vaccinated in that district alone, and no new cases had been reported since July 17th, and Dr. Clark said, "I am beginning to think that we have succeeded in stamping it out." On August 2nd Dr. Clark reported to the secretary of the State Board of New York that up to that date there had been fourteen cases and two deaths. In this letter Dr. Clark stated that two cases of the first set of four had been in attendance at a school of 2,000 scholars. The other cases of this first outbreak occurred in the families amongst the relations of these first families. During the succeeding month of August no more cases, or almost none, were reported; but owing to the fact that the class of people amongst whom the outbreak occurred were foreigners, crowded together (as many as 75 being in one tenement), not accustomed to having medical attendance, and being afraid of being quarantined and kept from work, other cases occurred and were secreted. This started the outbreak afresh, and up to the date of my visit, on the 27th of September, to Buffalo, just 60 cases in all had occurred. On three streets outside the Polish district cases have occurred. These are Seneca Street, Niagara Street and Main Street. Regarding these cases, it may be said that they have arisen from people going about in public, or living in houses where secreted cases have occurred. With renewed vigilance on the part of the health officers in searching out secreted cases, it may fairly be hoped that few new cases will occur from that source. The daily papers up to date report nine more cases, but they have been mostly in the Polish centre. One physician was, however, reported dangerously ill with the disease at the time of my visit, and the wife of another is, by to-day's paper, reported to be sick with varioloid, and to have been removed to the hospital.

Returning to Toronto cases, your committee would recall to your recollection that on September 23rd, every city newspaper had a half column or more of reports announcing to your committee and to the world for the first time that smallpox had again broken out in Toronto. From these I find that on September 14th, the disease appeared in a house on Agnes Street, and on the 18th in a house on Richmond Street. There is a considerable similarity in the history of these two recent outbreaks in different cities. First cases occurred in both cities at dates closely approximating. We know that the source of the Buffalo case was the infected clothing of an immigrant who had been allowed to pass through New York quarantine unfumigated, thereafter being hung up in the tenement house in Buffalo that he came to. The source of the first cases in Toronto is unknown to the Board.

Both cities presumably during August had stamped out the disease. Both cities have had industrial exhibitions, and the public in both cases discovered just after these fairs have closed, that smallpox has been abroad.

The sources of the second outbreak in Buffalo have been located in secreted Polish cases. The sources of the two outbreaks in Toronto in different parts of the city are, as far as your committee can gather, undiscovered. We have seen newspaper statements that a woman, who was a cook, and came from Buffalo on account of the prevalence of the smallpox there, had apartments in the Richmond Street boarding-house; that she is at present engaged in a Toronto kitchen, and that for obvious reasons it is not desirable to tell the public which house this particular one is. We have later information purporting to show that this Buffalo story is a myth. At any rate the woman cannot be found.

In consequence of the Buffalo outbreak your committee communicated with the State Board of Health of New York, and asked for information regarding the epidemic, and was informed that smallpox was not epidemic in any part of the State, Buffalo having a charter of its own, and being independent of the health laws of the State. On July 17th all Local Boards along the Niagara border were notified to appoint Medical Health Officers and enforce the laws relating to vaccination. So prompt had been these precautions that no case has occurred on the Canadian side along the whole line. That the disease had got a start which made it probable that cases might occur throughout the winter in the Buffalo district and possibly in Canada, there could be little doubt, as a case had occurred at Black Rock, another at Tonawanda, and another near the Cattaraugus Indian reserve. Your committee had to consider whether the emergency called for further action on the part of the Board than to urge on every Local Board systematic and general vaccination. The danger was in the lack of general vaccination and the possible inefficiency of the measures taken at Buffalo to protect herself and the general public.

But what is Buffalo doing?

1. There is a Medical Health Officer.
2. There is a staff of ten physicians regularly appointed, each of whom has charge in one of ten districts into which the city is divided.
3. There is a corps of eight sanitary police constantly employed, and emergency police sworn in as required.
4. Wide and general vaccination has already been carried on in the Polish District, and 3,000 to 4,000 persons are at present being vaccinated daily.
5. There is a smallpox hospital with a young physician constantly in charge, who from time to time is advised by the Medical Health Officer, who visits the hospital occasionally.
6. While the law in Buffalo requires that the physician in attendance is to give a certificate before a patient can be taken from his home and removed to the hospital, yet, inasmuch as the families in such cases are kept a much longer time quarantined in their own houses, in almost every instance first cases are being removed to the hospital, and the family quarantined for ten or twelve days, and the house thereafter disinfected.
7. The district physicians are making a more or less systematic inspection of their districts in search of secreted cases.

Can more be done by Buffalo in either her own or the public interest? No; if what is being done is being done thoroughly. With regard to this your secretary has become acquainted with the officers and their ways of doing work, and can only say they appear to be laboring earnestly and intelligently to stamp out the disease—quite as much so as any of our own Boards. Results alone can prove the character of the work done in any case.

Your committee has had next to consider whether the work being done, both in Buffalo and by our own Local Boards, should be supplemented by a train inspection service under its direction. With regard to this, your committee would say there would be a number of points to watch. There are the Suspension and Cantilever bridges at Niagara Falls—the great proportion of the passengers over which are going to and from the east, and, if they go to Buffalo at all, would pass through by train. The carriage and foot-path bridge at Clifton, where excursionists frequently are crossing and recrossing; the International bridge at Black Rock (Buffalo): the ferry at Fort Erie, and other boats, schooners, etc., going up Lake Erie and touching at Canadian ports.

This line is an extended and divided one, and would need some six officers to do the work thoroughly. This would mean a vaccination or requiring a certificate of vaccination of all passengers crossing over, and a fumigation of all baggage, since through passengers may have stayed in Buffalo. It would mean hours of detention for trains and passengers, and would only serve to aid railroads running along the southern side of Lake Erie, to the detriment of Canadian commerce, as travellers would, if possible, avoid passing through Canada. If the necessity owing to carelessness in Buffalo was evident, your committee would have no right to discuss commercial considerations; but inasmuch as this has not been proven, a service not urgently necessary would be performed perfunctorily in a short time, and evil would result from the false sense of security created by the pretended inspection.

In conclusion, your committee would say that every end would, in its opinion, be gained should the Board have an officer of tried experience located in Buffalo, whose special duty it would be to keep a register of every case there occurring, and of every house, and keep this Board informed of any instance in which the quarantine became relaxed, the disinfection imperfectly performed or neglected, and whether any baggage or clothing was removed while in an infected state from any house. In this way alone, it is believed, can effective work be done, while it would be a spur to the Buffalo authorities and a source of accurate information for ourselves.

(Signed) C. W. COVERNTON,
FRANCIS RAE,
PETER H. BRYCE,
Committee on Epidemics.

The action recommended in the preceding report was approved of by your Board and endorsed by the Minister in charge of the Department, and Dr. W. Lehmann proceeded to Buffalo on the 12th of October, and carried on the work of inspection in a manner most satisfactory to your secretary. The following report indicates the state of affairs during the succeeding month:—

TORONTO, November 7th, 1888.

To the Chairman and Members of the Board:

GENTLEMEN.—According to instructions received at the last meeting, your secretary proceeded to secure the services of a medical inspector of the Board to proceed to the Buffalo district. After a short delay I secured the services of Dr. W. Lehmann, who left for Buffalo on the 12th October. The Grand Trunk Railway kindly supplied me with passes for the Board's officer. His report is herewith presented in full. The Lambton Mills outbreak was successfully limited to the first house through the energy of Dr. J. Cotton, the Medical Health Officer of Etobicoke Township. The Toronto outbreaks, which at time of last meeting had established seven centres, have through thorough measures been limited to these, and all the cases are convalescent, and no new cases have occurred for over a fortnight.

Similarly, the outbreak in Stouffville was promptly stamped out by the energy of Dr. Freel, the Medical Health Officer of the Local Board.

In North Gwillimbury the outbreak has been more serious, owing to the fact that a number of persons had been exposed in the house where the first cases were. The clerk informed this Board of the fact, and during the absence of the secretary Drs. Cassidy and Covernton, directed that the municipal council at once have a Board organized and a Medical Health Officer appointed, which was promptly done. Two days after I drove through the infected district, reaching it from the south. By good fortune, I met the Local Board of East Gwillimbury in session at Sharon, and obtained all information within its possession with regard to the outbreak, and requested them to appoint a Medical Health Officer, Dr. Armstrong of Mount Albert, which was done. A member of this Board proceeded with me till I met the secretary, Mr. Sennett, of the North Gwillimbury Board, with whom I proceeded to Sutton, where a long conference was held with the Reeves of North Gwillimbury and Georgina, and the Medical Health Officer. Compulsory vaccination was decided upon, and a joint meeting of the four townships adjoining was fixed for the next day for combined action in stationing sanitary inspectors, each agreeing to put on two inspectors, and to arrange for a common isolation hospital if required.

On October 22nd, Dr. Noble, of Sutton, reported nine cases of smallpox, located as follows: seven in North Gwillimbury, one in East Gwillimbury, and one in Georgina.

On October 22nd, Mr. Pass of Brownhill, in Township of Georgina, reports two cases of the disease, one of the patients having contracted the disease in North Gwillimbury according to Mr. Pass's letter.

Mr. Sennett, the Clerk of North Gwillimbury, thinks that the disease is traceable to Toronto, but does not give details as to his statement.

Mr. Scott, Reeve of North Gwillimbury, on October 26th, reports that the orders of Dr. Bryce have all been complied with, and states that about forty families have been quarantined, and that two inspectors are going through his township.

On October 27th, Mr. Anderson, Reeve of Georgina, states that inspectors were appointed in all the townships affected, with the exception of the Township of Scott, as agreed upon at a meeting of the reeves; he states that about fifty families are quarantined, and that six men are vaccinating in Townships of Georgina and North Gwillimbury. He locates the cases thus: six cases in one house situated two miles from Keswick; one case in a house one mile from Keswick; one case in a house about five miles from Keswick; one case in Brownhill.

On October 29th, Dr. Bentley reports that there are no new cases.

Dr. Oliver, of Sarnia, on October 26th, reports mild case of smallpox.

Dr. Johnston, of Sarnia, October 29th, reports two new cases of smallpox, and that strict quarantine has been enforced.

Dr. T. A. Freel, Stouffville, on October 13th, reports a case of smallpox, patient quarantined and vaccination general; the patient had been working in Toronto.

Dr. J. M. Cotton, Lambton Mills, on October 2nd, reports a case of smallpox.

P. H. BRYCE,
Secretary.

TORONTO, November 8th, 1888.

To Dr. P. H. Bryce, Secretary Provincial Board of Health:

DEAR SIR.—In reference to my work in and about Buffalo and along the Canadian frontier in connection with the smallpox outbreak, I have to say that I arrived at Niagara Falls on the 12th October, and found the Medical Health Officer, Dr. Oliver, making a house to house vaccination. Next day, October 13th, went to Niagara Falls South or Drummondville, and found Dr. McGary, Medical Health Officer of that place, also going from house to house vaccinating every person who had not been vaccinated in the last seven years and as many others as were willing. I have every reason to believe that the work was most thoroughly carried out at these two places. I learned while here from Dr. McGary, that arrangements were made for vaccinating the Township of Stamford, which includes the territory about the Falls outside the town. I have since received information from a different source, that owing to some misunderstanding between the Medical Health Officer and the Council the work in Stamford was dropped. I spent some time with Dr. Talbot, the Medical Health Officer on the American side, and found that although he was vaccinating more or less almost every day there was no systematic thorough work done. Arrived at Buffalo on October 14th, and proceeded at once to obtain all the knowledge possible as to the extent and location of the smallpox, and the methods taken to stamp it out. Dr. Clark, the Medical Health Officer, was very kind and genial, and in a very short time I found myself very well acquainted with him and a number of his assistants. The work consisted for the most part of vaccinating, searching for new concealed cases and quarantining, also fumigating. I found vaccination going on very extensively. Free vaccination stations were opened in different places, and house to house vaccination in the Polish district where the large majority of the cases occurred. There is in the Polish district a population of 35,000 Poles huddled together in tenement houses and in a condition favourable to the spread of contagious diseases. Up to this time, over 50,000 people had been vaccinated free.

Whenever a new case was found it was removed to the pest-house if in a fit condition to be moved, the clothing either burned or disinfected by boiling and bichloride of mercury, the woodwork of the house washed with bichloride, and the house fumigated by burning sulphur. The house was then strictly quarantined for a fortnight, and if any other inhabitant of the house took the disease the treatment was again gone over. Up to this time, there had been eighty-six cases of small-pox in Buffalo.

On October 17th, went to Tonawanda, where I found four cases of smallpox and the regulations pretty lax, vaccination not compulsory, and a good deal of disputing among the doctors as to what their duties were, and confusion arising from there being two villages of Tonawanda, one in each county and only separated by a creek. Sailors were not being vaccinated at all and would be almost sure to carry the disease to the ports they touch at if it spreads to the part of the town frequented by them. I could not find any shipping between Tonawanda and the Canadian ports nearer than Georgian Bay, where there is an extensive lumber trade.

October 18th, went to Fort Erie and saw Dr. Douglas, Medical Health Officer, who assured me that the village was being thoroughly vaccinated. He was not making a house to house vaccination, but I had reason to believe that in a little time he would get the village thoroughly done. The Local Board had also decided to put an inspector on the ferry between Fort Erie and Buffalo.

October 19th, visited township of Bertie, including villages of Victoria, Amigari, Ridgeway and Stevensville. I found a very extensive communication between all the frontier townships, towns and villages, and Buffalo; people from the Canadian side within a radius of twenty or thirty miles from Buffalo go there to do a little trading and shopping and visiting friends, just the same as people from the country and villages near Toronto visit the latter city. Besides I found that there were a very large number of domestics employed in Buffalo, whose homes are on the Canadian side, and just at this time a lot of them were coming home and visiting friends, and friends from the Canadian side were visiting them in Buffalo, etc. Thus there seemed a great danger of these townships becoming infected unless thoroughly vaccinated. The township of Bertie in response to a request from yourself had issued a proclamation, calling on all persons who had not been vaccinated within the last seven years to have it done within the next seven days. I visited

the different doctors at the end of the seven days and found that not a hundred people had been vaccinated in the whole township. I then visited a majority of the members of the Council and Local Board of Health, and urged them to issue a new proclamation making vaccination free and compulsory, to appoint each of the three doctors in the township public vaccinators, have them visit all the schools and allow the parents and other members of the family to be vaccinated at the school house along with the children, thus each of the doctors' offices and each school would be a free vaccination station, and none of the people would have more than a mile or two to go. This plan was decided upon and is now being carried out. The doctors have gone heartily into the work, especially Dr. Brewster, the Medical Health Officer for the township, who calls at all the houses on the road to the different schools, so that Bertie is practically having very nearly a house to house compulsory vaccination. Dr. Brewster informed me the other day that fully one-half of the children under ten years had not been vaccinated before and it was the first time for a great many adults. In as many of the townships as I could find time to visit I tried to have something of the same plan carried out, with I think pretty fair success, although some of the townships move slowly in the matter, and it is too soon yet to tell how much will be done. The townships visited include all with the exception of three from Niagara Falls, up the river and along the lake shore as far as Port Rowan. I spent part of my time in Buffalo investigating the spread of the disease and means adopted to check it, and part in the townships until October 26, I went again to Tonawanda, found no new cases of smallpox.

October 27th, found that two days previously, a gang of fifty Italian labourers had gone from Buffalo to work on the South Norfolk Railroad between Simcoe and Port Rowan. I at once went to Simcoe and drove to the Village of Vittoria, Township of Charlotteville, where the Italians were stationed, and found Dr. McInnis, Medical Health Officer, in response to an order from yourself, getting ready to vaccinate them. By the next day they were all vaccinated and isolated, and I then visited the three townships through which the road passes and urged a general vaccination. The same was done also at Simcoe and Port Dover.

October 31st, visited Walpole township owing to a report of smallpox. Found only a few cases of chickenpox, and on enquiry found that almost none of the children in the neighbourhood were vaccinated. Next day, November 1st, I went to Jarvis, where I found a majority of the Board of Health and urged them to see that a Medical Health Officer was appointed and the township vaccinated.

November 5th, Buffalo. Cases of small-pox have been found in the last few days on Canal and Peacock streets, the very worst slums of the city, and the authorities anticipate a pretty severe outbreak in this quarter. A boat came into port to-day from Chicago with a case of smallpox on board. It was one of the sailors, and caused a suspicion that there may be smallpox in Chicago.

November 6th, visited St. Catharines, Thorold and Port Colborne, as I thought places along the canal were pretty badly exposed just now.

St. Catharines has a few cases of measles, is doing no vaccination and has no Medical Health Officer. They promised to appoint a Medical Health Officer at once and take steps to vaccinate the city.

I have the honour to be,
Your obedient Servant, etc.,

W. LEHMANN.

By resolution of the Board Dr. Lehmann's services were continued for another month, and during this period he was engaged largely in the townships along the border, visiting the various Boards and insisting upon the compulsory Vaccination Act being promptly and thoroughly enforced. The following letter from Dr. N. Brewster, the active and efficient officer of Bertie Township, opposite Black Rock, states some of the dangers apprehended and the methods adopted for counteracting such :—

RIDGEWAY, October 15th, 1888.

MY DEAR DR. BRYCE,—I have been down along the river making enquiry as to persons going to Buffalo, who live on this side and work there. That is all stopped now. I could learn of only one who crosses, and that a young lady. Dr. Knisely, who lives at Victoria, says he believes nearly all have now been vaccinated, who were not three years ago when the Montreal scare occurred. But it is quite impossible to oversee all who cross over from here, as there are seven landings and stations where they can get off. The proclamation will cause many to get vaccinated that would not come out otherwise, but nothing less than a house to house inspection will be thorough.

Yours in haste,

N. BREWSTER.

Of the many dangers attached to this outbreak none were greater than that of the bringing in to work on the Norfolk railway a very considerable number of Italians who had been residing in Buffalo. Information of their arrival was received by telegraph, and within a few hours they were all vaccinated and kept under surveillance till the incubation period was over. It is to be regretted that township Local Boards do not

appreciate at an earlier stage, and to a greater degree, the necessity for general vaccination. A small expenditure for free systematic vaccination would have avoided the lamentable outbreak which, beginning in January, has desolated the Township of Southwold, and made an expenditure of what would have been a hundred or so dollars mount up into the thousands. To say that many townships escaped does not lessen either the culpability of or the cost to those which have suffered. That the sin of omission of this prophylactic measure has been in some degree covered by energetic action of these Boards in Elgin county is, however most creditable, but it cannot minimize the loss to those who have suffered, in person or in friends, through the severe character of the cases which have occurred.

Out of the Buffalo outbreak grew, in all probability, the several other outbreaks which have to be noted. As already referred to in the report of your Secretary, outbreaks occurred in Stouffville Village, Ontario county, North Gwillimbury and Lambton Mills in York county, and in Sarnia during the months of September and October, the first cases in every instance having contracted the disease during their presence in Toronto at the Industrial Exhibition in the middle of September. Strangely enough their exposure was in every instance at a time when no cases were known to exist in the city, and the only inference to be drawn is that persons having recently recovered from the disease, or whose clothing had been exposed to the infection, had come in contact, directly or indirectly, with these several victims of the disease.

It is satisfactory, however, to know that in all these outbreaks the Local Boards, when once at work, acted with such promptness and thoroughness as to rapidly suppress the disease.

Of all these outbreaks, that beginning in North Gwillimbury, thence extending to East Gwillimbury and Georgina Township proved the most serious.

As in the later and still more serious outbreak in Southwold Township in 1889 the extent of the danger was greatly increased from failure to early detect the nature of the disease, in part owing to the mild nature of the first cases. In Gwillimbury the first victim was a farmer, and during the period prior to discovery, various persons sat up with the sick, and threshers boarded and slept in the infected house. These not only took the disease, but also disseminated it. A visit to the district by your Secretary served to strengthen the hands of the three Local Boards immediately interested, and Medical Health Officers and public vaccinators rapidly circumvented the disease. Trains for a short time did not stop at one of the infected centres, while threshers, schools and churches for a time were stopped in their ordinary duties. In connection with this, as in every other rural outbreak, a difficulty of great moment arose. There can seldom be found competent and trustworthy persons who will act as sanitary inspectors and carry out the work of disinfection. It is most desirable that some means be considered by the Board whereby such a staff might be educated, and their services be at the disposal of Local Boards during such emergencies.

In connection with these smallpox outbreaks it is proper to mention that the "Act respecting Vaccination" has been found to be of a satisfactory character, and that in no case has any serious opposition been made to its provisions being enforced. The difficulty resides in the prevailing laxity with regard to its provisions for the regular vaccination of children throughout the year. With a Vaccine Farm under the supervision of the Provincial Board, and in a position to supply at all times reliable vaccine in any quantity, there can be no excuse for Local Boards not insisting upon the Act being put into force. Experience has everywhere taught that if it is left to the family physician or the householder children will not be generally vaccinated. If, however, the rule regarding the admission of children to school only on the production of a certificate of successful vaccination were enforced, the same end would in large measure be attained. It is agreeable to think, however, that in almost every case where first cases have been early diagnosed, the disease has been limited to the family where it first appeared. Nothing better illustrates the efficiency of local organization than the ability shown by Boards to stamp out these.

various outbreaks from the moment that their nature has really been made known. The following is a list of the outbreaks and cases which have occurred during the year, and illustrates the generally mild character of the cases and their skilful medical treatment :—

SMALLPOX IN ONTARIO DURING THE YEAR 1888.

| NAME OF PLACE. | Dates of Discovery of the Several Cases. | Total number of cases. | Deaths. |
|---|---|------------------------|---------|
| Toronto City | April 10; June 27, 30; July 2 (2 cases); September 9, 18, 23, 26; October 1, 4, 6, 7, 11, 12, 14..... | 16 | 1 |
| Stouffville Village | October 2 | 1 | |
| Lambton Mills (Etobicoke Tp.)..... | October 2 | 1 | |
| Gwillimbury N., Township (York Co.).. | October 10, 12 (3 cases), 13 (2 cases), 19, 22 (3 cases); November 1 and 3 (3 cases) | 13 | 1 |
| Gwillimbury E., Township (York Co.).. | October 13..... | 1 | |
| Georgina, Township (York Co.)..... | October 13 (2 others had disease subsequently)..... | 3 | |
| Sarnia Town (Lambton Co.)..... | October 3, 17, 24, 30 (2 cases); November 8 (5 cases), 12 (2 cases)..... | 12 | |
| Moore, Township (Lambton Co.) | November 8, November (date not given), November 17..... | 3 | 1 |
| Chesterville, Winchester Township, (Dundas Co.) | Early in the spring of the year (April 10) the disease broke out in a family of four members | 4 | |
| | Total | 54 | 3 |

2. Diphtheria.—Since the study of diphtheria presented to the Board in the report of its secretary contained in the annual volume for 1886 there have been comparatively few new features of the disease which have presented themselves. In that report the history of the disease, both from a medical and statistical point of view, was presented, and a large amount of statistical and exact information will there be found collated. A remark therein quoted from Hirsch's hand-book on the geographical distribution and character of the disease may be recalled with benefit. He says:—"The history shows us also a peculiarity in the comportment of diphtheria as an epidemic which distinguishes no other epidemic disease in so decided a manner. The several cycles have extended over periods of various lengths, many of them only a few years and others lasting several decades." Again he says.—"That certainly, as regards our own time, we have to deal with a general outbreak of the disease."

These two statements are fully borne out by the correspondence which has from time to time been brought before your notice at the quarterly meetings of the Board, and by the reports of Local Boards, as found in the Appendices. Further, it may be mentioned that while certain localities have especially suffered, no portion of the Province has been free from its ravages. This was also true of the previous year, 1887, as shown in the Registrar-General's report just published. The deaths in all the counties showed for 1887 an average of .6 per 1,000 of the population and 1.1 per 1,000 in the eleven cities of the Province. The latter increase is remarkable, as the returns for 1885 and 1886 show for the former year .5 and for the latter .68 per 1,000.

Regarding its general distribution, both as regards varieties of soil, population and locality, I shall illustrate by quoting from the mortality returns of 1887 :—

| | | |
|---|-----|-------------------|
| Essex, extreme south-west | 1.1 | deaths per 1,000. |
| Kent, " " | 1.2 | " " |
| Haliburton, extreme north-east | 1.5 | " " |
| Muskoka and Parry Sound, extreme north | 1.3 | " " |
| Prescott and Russell, extreme east | 2.1 | " " |
| York (including Toronto), central south | 1.6 | " " |

These five are selected as the five highest county death-rates from this disease, and a glance at the map shows their distribution to be wholly irregular as to locality. But looked at with a knowledge of the special circumstances peculiar to each district, we at once gain light on the whole subject.

The south-west counties are in many respects a prairie, with much low-lying lands with abundant vegetable deposits and a notably bad water supply, often scooped from shallow wells dug through the decomposing vegetable matter down to the hard-pan. There are, further, many French settlers, from amongst whom it is very difficult to eradicate a zymotic disease once introduced, first because of their generally smaller houses, and secondly the difficulty of enforcing isolation. That to the latter two causes are largely due the great spread of the disease and the high mortality rather than to the special character of the locality is seen in the fact that the settlers in Prescott and Russell are largely of the same class, and that amongst them isolation is very imperfectly carried into effect, while in Haliburton and Parry Sound the relatively limited means of the settlers, their constant intermingling and the difficulty of obtaining medical aid, not to mention their poor houses and often bad water, readily account for the abnormally high mortality. That the mortality of York is so high is due to the fact that of the 3,418 deaths therein 2,688 occurred in Toronto; while 199 of these were due to diphtheria. What the conditions are in Toronto productive of such a high rate were referred to in the 1886 report, and to them might be added the two causes referred to above as common in the less favored rural localities, viz., insufficient isolation of first cases in houses and a permitted mingling with the public before patients have become free from infection.

While, however, the correspondence during the year suffices to indicate only too forcibly the general distribution of diphtheria; it also shows that both physicians and Local Boards are becoming much more fully alive to the contagious character of the disease, the causes which prove favorable to its existence and spread as well as to its fatal nature, and to the vigorous measures requiring to be taken if its ravages are to be stayed. More than any other, except typhoid, it tends to reappear in its old haunts smiting one family after another who may successively inhabit the same premises, and attack even at different times persons who have before suffered from it. It will not be devoid of interest to cull from the official correspondence a few of the local conditions which were associated with outbreaks.

1. At Lindsay in the end of January a severe case of diphtheria was imported *via* the Victoria Railway from Kinmount, a small frontier village. The man who was sick had been taken ill while acting as cook in a lumber shanty near Kinmount. Dismissed from the shanty, he was forced to seek some settlement where a physician could be found. He went to Kinmount and stayed in the hotel there until driven from thence, and as there was no place in the village where such persons could be received, he took rail to Lindsay, where he was taken charge of by the Local Board and put in a temporary hospital provided.

2. A man taken sick at Fenelon Falls in August consulted a physician, who pronounced the illness diphtheria. The physician prescribed and the man went out, having been told to return for the medicine. He did not return, but took the next train north to his home near Minden. The result was that, though the case proved so mild that the patient went out and in and did not isolate himself from family or public, some four or more cases occurred in the family, with three deaths; a young missionary who volun-

teered his services as nurse to these young children became very ill, while the sum total of cases amounted to a considerable number.

3. At the Penetanguishene Reformatory for Boys, a place with two hundred inmates, situated at a distance from the village and with most salubrious surroundings, an outbreak took place at the close of 1887, and in spite of the greatest vigilance and care in the matter of isolation sixty-five cases had occurred amongst the boys and a number in two or three families of the guards who went out to their homes daily. The building, built many years ago as a military barracks, had had the basement paved with flagging-stone, and the soil, from washings, had become saturated with organic filth. At some later date steam-pipes had been laid, owing to the old-fashioned construction, under board floors in the wings and passages; leaks of steam at places had caused such to become damp, and the confined spaces beneath were a hot-bed of fungoid growth. The construction favored the upward rise of the basement air, and until these whole spaces were cleansed and disinfected, the steam-pipes re-laid in proper position and the old decaying floors removed the infection persisted. What early diagnosis and prompt isolation and treatment mean may be gathered from the fact that of sixty-five cases not one was fatal, while in the few cases, some six in all, in the two families of guards there were three deaths, two children and a mother.

4. In the Welland gaol occurred an outbreak, with a fatal termination, in the person of the gaoler's daughter, a healthy child of thirteen. Wherever contracted, the dark, damp, unsanitary condition of the basement where the family lived, made the case from the beginning a desperate one.

5. A case occurred in the Mercer Reformatory, in one of the girl inmates, which had a favourable recovery. From this one, none followed. A cess-pool at the base of a grating in the playground seemed the immediate cause, since, had it been in the milk supply obtained from outside, more would with certainty have occurred in other inmates. These isolated cases in public institutions are referred to as being remarkable, inasmuch as the circumstances, from closest enquiry, made it in the case of both reformatories extremely improbable that the first cases were imported ones. The difference between the results in the two, one an old building undergoing repair and the other a new building in first-class sanitary condition, is both interesting and instructive.

6. A clergyman at Frome, in Elgin county, stated that five of his children had malignant diphtheria, with one death. He lived seven miles from St. Thomas, and no other cases had occurred in the neighbourhood during the year, and the children had not, as far as he knew, been in any way exposed. The physicians suspected a local well or cistern.

7. Cases occurred at Ottawa in a house where the upper flat was kept as a poultry-house;

8. During April, at the request of the Local Board and School Board of Whitby, an investigation by the chairman and secretary of your Board was held into an outbreak which had begun in June of the year previous, and which had lasted up to that date. The following extracts regarding the outbreaks are taken from diary:

1st. First case in June: boy died; several others in family took it.

2nd. End of June: boy died (went to Room No. 1, Model School); house near railway; bad water in cellar.

3rd. Family near Royal Hotel; in July, school closed; other cases, continued near hotel.

4th. Cases then occurred in three families in west end; some of premises in bad condition.

5th. Another case near bay; distance, two miles from others.

6th. Children attending Rooms 1 and 2 in Model School had, as seen, been sick with the disease as early as October; but, in February, the infant class became a permanent

seat of the infection, to the extent that twenty-nine pupils out of a class of sixty, up to time of inspection, had had the disease, and thirteen deaths had occurred.

7th. At a family, just outside the corporation, engaged in the milk business, diphtheria broke out. Four cases with two deaths occurred. The disease, wherever first contracted, was made fatal by bad surroundings, notably bad water. Chickens were stated to have likewise been suffering from an attack of diphtheria.

In these Whitby cases, it was abundantly manifest that the duration and extent of the outbreak was largely due to imperfect isolation or none at all in first cases; to the mixing of mild cases, before complete recovery, with other susceptible children, and to the incompleteness of the disinfection carried out, both as regards infected persons, clothing and houses.

9. Early in December, reports from Innisfil township, in Simcoe county, indicated the presence of an unusually severe outbreak in the neighbourhood of Churchill village. The disease had been introduced into the locality in the person of a pupil who had returned home sick from Bradford, late in the autumn. He had been mildly sick, and the first cases, being in a good farm-house, were looked upon as little more than ulcerated sore throat.

From there the disease was conveyed to a number of adjoining farm-houses, and obtained a hold amongst the school children. Near by the school-house was a semi-pauper family living in an old log house, and in a most unsanitary condition. Nearly all the children of the house died. The Local Board acted energetically when once the gravity of the outbreak appeared, and much was due to the local physician for his thorough and painstaking endeavours in the matter. Your secretary visited the locality, and advised as to the measures most likely to limit the spread of the disease. Notes from my diary indicate the methods of propagation of the disease, where it had not been known for years, to have been directly due to contagion carried by school children.

10. In October, information was received that malignant diphtheria had broken out in Brighton township, Northumberland. Within a few days eight deaths had occurred, there being three in one family. The action of the Local Board of Brighton was tardy, and the alarm spread to surrounding townships, which called loudly for action. A general surveillance of infected houses and persons was instituted by the three townships in the neighbourhood where the cases were. The following prompt action of the Medical Health Officer was taken, on a telegram being sent from this Department:

Dr. P. H. Bryce:

DEAR SIR, — Your telegram received. On Thursday last, 25th Oct., I visited the diphtheritic district, township of Brighton, and had all the houses placarded, and left the Sanitary Inspector in charge. I reported to the Brighton Board that:—

- 1st. All the school-houses should be thoroughly cleaned and disinfected.
 - 2nd. The cheese-factory to be thoroughly renovated, and all hog-pens and hogs to be removed therefrom, as the disease started there.
 - 3rd. Certain wells to be cleaned (naming them).
 - 4th. A nurse to be sent to one of the houses, etc.
- And they acted accordingly.

This disease has been going on since August, and never reported to me or the Board until Tuesday last. The first case (at the factory) died, and I am informed that the school children went in to see the corpse, and from that it got into the school.

I think I have got the disease under control, and shall very likely not lose any more cases.

Yours truly,

N. B. DEAN.

This prompt action was effective, but the Medical Health Officer found difficulty in restraining people from infected houses from going abroad to town or market. The complaint was made, too, that no nurse could be found to go into the infected district.

The following is a curious illustration of how promptness of action frequently characterizes officers of health. A case is referred to your Secretary for opinion, it being that

the Medical Health Officer of Belmont and Methven very properly incurred expense in sending a messenger to Havelock, stating that a man would be prevented from taking his child, dead with diphtheria, to Cobourg, a distance of forty miles or more, the funeral having to pass through Norwood, within said officer's jurisdiction.

Other illustrations from correspondence might be given, further illustrating the many conditions under which the disease appears, or which aid in its extension.

But of the many outbreaks which have occurred those in the unorganized newly settled districts of Muskoka, Parry Sound, Haliburton and Nipissing, lying to the south of Lake Nipissing and the Ottawa River, and in the new railway towns which have sprung up along the Canadian Pacific railway, between Chalk River, near the Ottawa, and Port Arthur, at the head of Lake Superior, have been of the greatest extent and moment. It will be remembered that in the report for 1887, was printed the report of Dr. C. S. Elliott who had acted as a Medical Inspector of the Board and made a visit to some of the points along the railway, south of Lake Nipissing. The earliest complaints this year came from Chapleau, on the C. P. R., north-west from North Bay. Courteous and full information regarding authorities along the line was supplied to the Board by Dr. R. B. Struthers, supervising physician to the Company in this region. He pointed out that in the absence of municipal organization there was no controlling power in these towns over settlers who were not in the employ of the Company, and indicated the necessity for the matter being dealt with by the Government. Practical difficulties were in the way owing to the fact that the machinery of the Public Health Act did not readily admit of application to unorganized districts, and it was doubted whether the powers and duties laid upon municipal Local Boards could, in cases other than the mere handling of contagious disease, be made applicable to the abatement of nuisances, closing of foul wells, etc., and be exercised in these districts.

Regarding the matter, however, the following action taken by the secretary was approved by the Board as per extract from minutes :

August 17th, 1888.

The chairman detailed the circumstances of the recent outbreak of diphtheria at Chapleau as also the action taken by the secretary, acting under his instructions re the temporary appointment of Dr. R. B. Struthers, travelling physician of the C. P. R., as a Medical Inspector of this Board, to take action in outbreaks of disease, and in regard to all other matters relating to the public health in the unorganized districts of Ontario, and especially along the line of the C. P. R. west of Chalk River to Port Arthur.

In the interval preceding the time when governmental action might have been taken the disease abated at Chapleau, Schreiber, etc., through the exertions of the C. P. R. physicians at these points, and nothing further was done until November, when renewed reports came from the wide district of Parry Sound and Nipissing of the fatal prevalence there of diphtheria. Your committee on epidemics, at the suggestion of the secretary, instructed Dr. Lehmann, who had been up to this time engaged in smallpox work, to proceed to this north country and obtain as accurate information as possible regarding the extent of prevalence of diphtheria.

The following is a copy of his report on the subject :—

DECEMBER 12th, 1888.

To the Members of the Provincial Board of Health :

GENTLEMEN.—I have the honour to present to you report of work done in the Districts of Parry Sound, Nipissing and Algoma, in connection with the outbreak of diphtheria. Beginning at the Village of Sundridge, in the organized Township of Strong, on the Grand Trunk Railway about forty-five miles south of North Bay, last year there were twelve cases of diphtheria and five deaths in the Township of Strong, a little west (five miles) of Sundridge. With a Board of Health and an active Medical Health Officer, Dr. Toole, it was soon stamped out. This year there has been a number of cases of a very mild type of diphtheria with one death.

South of Strong is the Township of Armour, (organized) including Burk's Falls, and West Chapman, also organized with the Village of Magnetawan, at both of which villages there are

licensed practitioners. To the north of Strong are the Townships of Machar and Laurier, and directly east Joly, all unorganized, and all lying conveniently to be handled by the Medical Health Officer at Sundridge.

In all of these townships there have been a large number of cases of a mild type of diphtheria, the type becoming more malignant as we go north towards Lake Nipissing, and west in the townships lying to the south of and bordering on French River. North of Laurier along the line of the Grand Trunk Railway is the Township of Himsworth, unorganized, including the Village of Powassan. West of Himsworth is Gurd, also unorganized, and including the small Village of Commanda.

North of Himsworth is the Township of North Himsworth, organized, and including the Village of Callender on Lake Nipissing.

West of the Townships of Nipissing and Gurd are Patterson, Hardy, Pringle, Mills, McConkey and Wilson, all unorganized, and containing a considerable population of settlers and lumbermen, having a very large number of cases of diphtheria with a percentage of deaths very large.

No medical attendance, sanitary condition very bad, both as to dwellings, water supply, garbage and privy regulations.

A Dr. Kidd is said to have lately settled at French River P. O., near the mouth of French River, and goes as far east as the edge of McConkey, and the doctors at Powassan and Sundridge go as far west as Commanda; but the half dozen townships above named, lying between, are entirely without medical help and the disease goes on without any attempt to check it. Dr. Porter at Powassan has had under observation in the village and country surrounding thirty-eight cases with eleven deaths.

The water-supply of the district at all times bad is this year much worse on account of the exceedingly dry summer followed by very wet fall. The wells are nothing more than holes a few feet deep dug in the beaver-meadows, which dried up in the summer and when the fall rains began filled up with surface water poisoned by decaying animal and vegetable matter, the privy and stable being very often in close proximity to the so-called well.

The village and townships surrounding being unorganized, isolation is impossible; fumigation is carried out in some cases in the village but most people in the country are very poor and careless about such matters. In many cases there is no money to pay for carrying out the regulations and in none is there law to enforce them.

About twenty miles north of Powassan is North Bay a rapidly growing village at the junction of the G. T. R. and C. P. R. Railways, in the Township of Widdifield.

The village is not yet incorporated, but the township is organized and has a very efficient Board of Health with Dr. Carruthers, Medical Health Officer, Mr. Ferguson, Reeve, and Chairman of the Board, and Mr. Cornack, Druggist, Secretary. It is expected that the village will be incorporated next year, after which the Board of Health will endeavour to get enough assistance from the government and railroad companies to enable them to build a hospital.

There has been so far this season at North Bay, sixteen cases of diphtheria with four deaths. The first case occurred in Dr. Carruthers' family. An old privy of construction days, situated on the next lot and very close to the doctor's house was removed a short time before the child took ill. The stirring up of the old privy matters may have had something to do with it. The water-supply at present is largely drawn from the lake by teams. There are also some wells which generally speaking are in pretty good condition, but a few of them bad. In the houses where diphtheria occurred, people were using what appeared to be good water.

Drs. McMurchy and Howey, of the Canadian Pacific Railway, are also at North Bay.

There are some good townships north of North Bay, and the Government have opened a new road from North Bay to Lake Temiscaminigue, which will be rapidly followed by settlement and lumbering operations, and if better regulations are not observed an outbreak of diphtheria or some other contagious disease in a year or two will probably occur.

East of Lake Nipissing are organized Townships of Ferris and Bonfield and the country is partially settled all along between the lake and the Ottawa River.

In all this territory there have been a very large number of cases of diphtheria, but of a mild type and few deaths.

There is a licensed Dr. at Mattawa.

West of North Bay there are scattered settlements along the line of railroad for seventy or eighty miles. The Township of Springer, including the Village of Sturgeon Falls, is organized, but there is no doctor between North Bay and Sudbury, where there is extensive copper mining, and the mining company have a doctor. North-west of Sudbury, for several hundred miles along the main line there is neither settlement nor lumbering and never will be. Chapleau, a village of about 500, about 250 miles from North Bay, and composed entirely of railroad men and traders who supply them, has had an outbreak of the most malignant type of diphtheria. So far, eighteen cases with ten deaths. The Canadian Pacific Railway Company have a hospital and Dr. Arthur is the Canadian Pacific Railway surgeon in charge. Dr.

Struthers, who is stationed at Algoma Mills, was also at Chapleau assisting Dr. Arthur at the time of my visit.

The Canadian Pacific Railway are very liberal, and although they had gone to several thousand dollars expense for draining previously at North Bay, yet when the diphtheria broke out, at the suggestion of the doctor, the Company put in a new drain which cost \$2,200.

The company also have very good water pumped up from the lake and offer to supply all the people from their tank free of charge.

They can compel their own employees to use proper water and clean up their privies and garbage; but the other people who have bought lots and built their own houses do just as they please, and the consequence is a most deplorable condition of sanitary affairs. The land is low and swampy, water can be obtained by digging a few feet. The soil being of coarse sand and gravel is very porous and allows the soakage from the privies, stables and garbage heaps to get into the wells.

At Schreiber, 150 miles north-west of Chapleau, a few cases occurred with conditions very similar to Chapleau.

The thing most urgently needed in all these unorganized districts, is some person whether medical man or not, who will have sufficient authority to compel people to clean up their privies and garbage heaps and use the best water available.

For the Parry Sound District, the doctors of Parry Sound, Magnetawan, Burk's Falls, Sundridge, Powassan and French River, might be appointed Medical Health Officers for the respective townships in which they live, and the unorganized townships adjoining them, and then if a couple of other doctors were given some encouragement to settle in the district, for instance, one at Commanda or a little farther west, and another say at Byng Inlet, between French River and Parry Sound, the District of Parry Sound would be pretty well supplied. The Powassan District might include the neighbouring townships of Nipissing, North Bay, Mattawa and Sturgeon Falls, which might also be centres for districts. While farther west along the main line of the Canadian Pacific Railway where there are no settlements might be conveniently and cheaply handled by the Canadian Pacific Railway doctors. Their having free passes over the railroad would enable them to do the work of inspection at much less cost.

Your obedient servant,

(Sgd.) W. LEHMANN, M.D.,
Medical Inspector.

Action had not been taken in the matter when the year expired. As it is desirable to give the whole subject in a connected history, I shall here state what has been done up to date of writing. At an early period in 1889 during the sitting of the Legislature Mr. Armstrong, M.P.P. for Parry Sound district, brought the matter before the Government, and upon the adoption of your secretary's report, herewith subjoined, on the subject the following recommendation adopted by the Board was transmitted to the Hon. J. M. Gibson, the head of the Department:

The following motion was then carried:—"That the Board would recommend that the Public Health Act be amended so as to empower the Provincial Board to appoint for unorganized districts Medical Health Officers and Sanitary Inspectors, who shall have power to superintend and execute, under the direction of the Provincial Board, all regulations issued by said Board under clause 14 of said Act, such appointments to be made subject to the approval of the Lieutenant-Governor in Council, and further, that the Board form a committee to wait upon the Government to urge the adoption of the proposals included in the resolution just adopted with regard to the appointment of Medical Health Officers and the amendments to the Act necessary for this purpose."

REPORT OF THE COMMITTEE ON EPIDEMICS RE DIPHThERIA IN THE FRONTIER TOWNSHIPS IN THE NORTHERN DISTRICTS OF ONTARIO.

JANUARY 6TH, 1889.

To the Chairman and Members of the Provincial Board of Health:—

GENTLEMEN.—In again referring to this subject, which during the last two years has from time to time been brought before your notice in reporting outbreaks in localities extending from the Haliburton district on the east to Chapleau on the Canada Pacific railway, north-west of North Bay, and Manitoulin Island and Cockburn Island to the west, your committee feel that

the exigencies of the case are such as to demand such comprehensive action as will aid in recommending and establishing some permanent system of dealing with outbreaks in these outlying districts.

Last year our Medical Inspector, Dr. C. S. Elliott, reported on the North Bay and Sundridge outbreaks, your Secretary has reported on outbreaks about Lindsay, Kinmount and Minden, and Dr. Lehmann, whose report is herewith incorporated, has further reported on the districts south and north-west of North Bay. The reports in every instance show with sad iteration the progress of this fatal endemic disease, at times becoming epidemic, in the sense that attacking all the members of one or several families in a neighbourhood it not infrequently sweeps them all away, or leaves only heart-broken parents to mourn their offspring and their fruitless attempts to bring up a family of children, not more as companions to them in their isolation in the scattered settlements of the back-woods than as helpful hands to aid in that labour so necessary there to obtain, not affluence, but comfort in their declining years in homes whose exiguous means is aptly defined by the classic expression *angustæ vice*, the euphemism of poverty.

To ameliorate the conditions of life amongst those hardy settlers, who, with adventurous spirit, have chosen to leave their homes in older parts of Canada and hew out new ones from the forest, or who in many cases have, with the spirit of our forefathers, been lured from England to the back-woods by the siren voice of the emigration agent, who has filled them with dreams of an Arcady where the rivers swarm with salmon, and the cold winter is but beautiful in its opportunities for recalling the myth of Diana and re-establishing the English hunting-ground in a western land; in both cases, with varying degrees of necessity, our work remains ever the same. The conditions briefly summed are,—

1st. Sparse settlements; these may be made up of from two or three families to three or four hundred settlers in a township.

2nd. Very limited means in the great proportion of instances, making the result a small one, two or at most three-roomed houses. We have recently had by Professors Carnelley and Jamieson, and just now Dr. Russell, of Glasgow, illustrations of how mortality there increases regularly with decreasing rooms; but there can be no surprise that with infectious disease and its saprophytic decomposition, the products of exudation in the pharynx, etc., being constantly exhaled in a house 12x16 feet, air with closed doors becomes that of a charnel house, and as deadly to the helpless children awaiting to become in turn the victims, and not seldom to the worn-out and heart-broken mother who has seen one after another of the lambs taken from her fold.

3rd. House to house communication, for while settlement is sparse, it is most common to find that through accident of location by lake, stream, or on good land, the few settlers in a township tended to build convenient of access to one another. Pressing need in a stricken house and human sympathy cause one's neighbours to go out and enquire, and at times go in to aid in nursing, or at any rate sit down to discuss the situation, thereby doing all necessary to carry the infection on their clothing from so pestiferous an atmosphere to their children at home. Thus Dr. Curry, of Minden, has stated that along one concession line, of a number of houses, only two families escaped having cases of diphtheria, and they were new-comers not acquainted with the previous settlers.

4th. Distance from medical aid and supplies and absence of municipal sanitary supervision and control. This is exemplified by Dr. Lehmann's report on the Townships of Nipissing, Gurd, Patterson, Hardy, McConkey, etc., all unorganized, containing a considerable population of settlers and lumbermen, having a very large number of cases of diphtheria with percentage of deaths very large, no medical attendance, sanitary condition very bad both as to dwellings, water supply, garbage and privy regulations.

5th. Lumber camps. These complicate the problem very notably. Not only do the crowded shanties become, as it were, permanent seats of infection, affecting susceptible persons from time to time during successive winters, but sick men from them are sent out to the nearest settlement, to which they not infrequently spread the infection, or spread the disease still further by travelling in hot and crowded trains (to southern points where they live) to seek hospital and medical accommodation. Such are the prominent factors in the problem. While it is true that many of the same conditions prevail in well-settled communities, yet it may fairly be said that while in the latter the people are in a position to help themselves, in this northern country the conditions are such as to make action impossible. Few settlers, poor and isolated, are not organized into a municipality, and even if they were the few hundred dollars that they raise annually are spent in roads and bridges.

Schools in these new districts are largely supported by government. The lives of the settlers must, to some extent, come under theegis of a paternal government.

But how to do this best is the problem. In the materials collected we have it made evident that there are a number of prominent points in the different districts from which work will have to be done.

Beginning as Dr. Lehmann has done in his report, we have:—

1. Sundridge District, Dr. Toole, Medical Health Officer. South (a) Armour, organized, including Burk's Falls Village, Dr. Caughell; West (b) Chapman, organized, including Magnetawan Village, Dr. Walton; North (c) Machar, unorganized; North (d) Laurier, unorganized; East (e) Joly, unorganized.

2. Powassan District, Dr. Porter lives there. (a) Himsworth, unorganized, includes Powassan Village; West (b) Gurd, unorganized, Commanda Settlement; North (c) North Himsworth, organized, includes Callender; Northwest (d) Nipissing, organized; Northwest (e) Patterson, Hardy, Mills, McConkey, Wilson, unorganized, lumber camps.

3. Suggested new district to be worked from Commanda.

4. North Bay District, Dr. Carruthers, Medical Health Officer (in organized Township of Widdifield); North (a), (b), (c), (d).

East Nipissing District. Mattawa has a physician; (a) Ferris, unorganized; (b) Bonfield, unorganized.

6. North Nipissing District. (a) Springer, organized, including Sturgeon Falls; (b), (c).

7. Sudbury District. Physician in Sudbury.

8. Chapleau District, Dr. Arthurs (C. P.R.), unorganized.

9. Algoma Mills District, Dr. Struthers (C. P. R.)

10. Schreiber District.

11. Byng Inlet.

12. Manitoulin Island District.

13. Haliburton District, townships.

14. Minden District, townships.

15. Kinmount District townships.

This summary of districts, while tolerably complete, might yet be extended; but for present purposes temporary organization on this basis may be considered. Without discussing the various possible ways of dealing with the problem, it may be said that after due consideration the following plan would seem to suggest itself as being the most practicable.

1st. For the districts named, with such alterations as a more intimate knowledge of the directions in which communications are found easiest, it is desirable that physicians be appointed who might be called District Medical Health Officers, and who, through such amendment of the Public Health Act as the law officers may find necessary, would be clothed with all the powers at present laid upon Medical Health Officers of municipalities, and such other powers as the conditions may require. Their duty would be to exercise a general sanitary supervision of their districts, and give the District Sanitary Inspectors such aid in the stamping out of outbreaks of disease as the emergency might demand. They need not be, while regularly appointed, expected to act except when specially called upon by the Inspectors.

2nd. For each of the various settlements separated often by many miles, there would seem to be but one method of giving them effective aid, and that would be by having in each some competent man, a provincial policeman where possible, appointed a Sub-district Sanitary Inspector, with all the powers at present laid upon sanitary inspectors of municipalities, together with such additional duties as the conditions might demand. Amendment to the Public Health Act would in this case likewise be needed. These officers would be on regular duty at all times, and on them would devolve the every-day inspection and supervision of the sub-district set apart to each.

Should a case of zymotic disease occur, he should be empowered to at once, by methods prescribed from time to time by the Board, so as to isolate the patient, or family, as the case might be, see that the District Medical Health Officer—if no family physician was available—give professional services at their own or the public expense as each case may require.

Water supplies, cleanliness of premises, and such regular sanitary work as is carried on in any efficiently supervised municipality, would give these officials abundant work, while it would educate the people to the observance of sanitary law, until such time as the development of settlement would cause them to be organized on a self-governing basis. The work of organizing this system will demand much careful attention in order that the most effective results can be obtained, and the fewest possible mistakes in details made.

Your Committee would recommend the adoption of the report, and that a Committee of the Board be empowered to present the urgency of the matter to the Minister of the Department, in order that he may take such measures as will best carry out the views of the Board.

All of which is respectfully submitted.

(Signed)

FRANCIS RAE.

C. W. COVERNTON.

PETER H. BRYCE.

Committee on Epidemics.

This report is but a repetition and extension of the principle set forth in your secretary's report *re* the Haliburton district cases already referred to. His report thereon is as follows:—

TORONTO, April 7th, 1888.

To the Chairman and Members of the Provincial Board:

GENTLEMEN,—Owing to information contained in letters and telegrams from Dr. P. P. Burrows, Medical Health Officer, Lindsay, and acting upon instructions of the Hon. Mr. Ross, to whom a deputation from the County of Victoria had gone representing the dangers resulting from the transportation of cases of diphtheria on railway trains, I went to Lindsay on the 11th of February, and telegraphed the officers of Boards of Health up the Victoria Railroad to meet me there the next morning.

A meeting was held in the Benson House, and the whole subject of how best to deal with the question of isolating cases of diphtheria, etc., in the back townships was discussed. There were present: Mr. Walters, Mayor; Col. Deacon, Chairman Lindsay Local Board; Dr. Burrows, Medical Health Officer; Judge Deans; Mr. Barron, M.P., Lindsay; Dr. Curry, Medical Health Officer, Minden; Mr. Prust, Secretary Local Board, Haliburton, and your secretary.

The following facts were obtained:—According to Dr. Curry 280 cases had occurred in his district within the past three years. Mackintosh's Camp, in Snowden Township, became infected from a person from Muskoka. Scotch Line settlement had had cases in every house but two. A number of instances were given by those present of outbreaks that have occurred through cases introduced from other localities.

The importance of adopting thorough and energetic measures was recognized, and the necessity of making arrangements of a permanent nature was admitted. Isolated hospitals will have to be erected by municipalities, or several municipalities, at convenient centres, the expense thereof to be levied in proportion to assessment. Each municipality should pay the charges for its own patients sent to the central hospital. Patients from outside places, such as the shanties, should in every case be isolated by the Local Board of Health in whose jurisdiction they occur. The charges for maintenance and physician's services should in such cases be borne by the patient himself or by the lumber company in whose employment he may be, or, where there is no such provision, then the Provincial Board of Health may be fairly called upon to pay. The local hospitals should make application, under the Act *re* Aid to Public Charities, for a Government *per diem* subsidy for all patients. The various representatives of the Local Health Boards requested Mr. Barron and myself to urge upon the Government the adoption of the plan herein outlined as being reasonable and fair, and as promising to be effective and thorough. The adoption of some such plan is highly desirable, and the outlay will prove judicious in the end. Thorough precautionary measures should be adopted, and any reasonable and practical outlay in that direction will prove to be money well expended.

The conclusions arrived at in this connection, I may say, seem to me to be applicable to the whole new territory, and is the best, and indeed the only practical means of dealing with contagious diseases in either outlying new portions of the Province or in crowded centres, and it seems to me highly desirable that the Board should deal with the question of isolation or contagious diseases hospital. Placarding of houses for the commoner contagious diseases of children is in practice inapplicable and fails of its objects, and it would seem that the Board has the duty forced upon it of a reconsideration of the whole subject of the limitation of contagious diseases.

I have the honour to be,
Your obedient servant,

PETER H. BRYCE.

Acting at once upon the recommendation of the Board made on the adoption of the report dated January 6th, 1889, Dr. Hodgetts and Dr. Wade were authorized by the Minister to proceed, under the direction of Dr. Caughell, of Burk's Falls, to the Commanda and Dunchurch Settlements in Nipissing and Parry Sound Districts.

As to the condition of affairs and the nature of the difficulties to be overcome, I cannot do better than present abstracts from the weekly reports sent me by these two gentlemen.

COMMANDA, February 24th, 1889.

P. H. BRYCE, M.D.:—

DEAR SIR,—In accordance with instructions received from the Provincial Secretary, when appointed to this position October 13th, I have the pleasure of making the first of my weekly reports.

2* (B. H.)

Leaving Toronto Friday morning February, 15th, we were detained upon the road by reason of a slight railroad accident, thereby preventing our (Dr. Wade and myself) calling upon Dr. Caughell, of Burk's Falls, that night. However, upon February 16th, we waited upon him, meeting in conference, also with Mr. Armstrong, member of the Local Legislature for this district. As there were reported to be several cases at Dunchurch, it was deemed advisable for Dr. Wade to proceed at once to that place, myself to drive northward with Dr. Caughell.

On Saturday, the opportunity offering, I visited Emadale, (10 miles) township Perry, making enquiry of the hotel keeper and shop keepers, relative to the prevalence of diphtheria, etc., in that district; the report is *none* there.

Monday morning, February 18th, we left Burk's Falls, driving 17 miles to Magnetawan. Here we called on Dr. Walton, who reported none at present in his locality; he has had two cases this year, (one at Spence died.) From here we proceeded to Mecunoma P.O., 12 miles, remaining for the night.

Tuesday 19th, after leaving Mecunoma, called at School No. 1, Lount. The teacher, no illness among the children. Here I left pamphlets and where I could be found if wanted; also called on Rev. Mr. Bollander, (German), he did not know of any cases now. Arrived at Commanda (12 miles) at noon. As there were reported to be several cases at Commanda Lake, distance 12 miles, we proceeded there after dinner. The teacher School Section No. 1, Patterson, did not know of any cases just now; the school had only just been re-opened, after being closed some time on account of the prevalence of diphtheria. Here I visited three farmhouses, in one they had lost two children with the disease, (January 7th), at the other two I found nothing of the nature of it. When returning to Commanda. I found at the farmhouse of John Atchison, 7 miles from Commanda, Boyd Road, two children, John, *et.* 2 years and Lily, *et.* 4. both convalescent from diphtheria. This house I will disinfect myself, although Mr. Atchison tells me he has done so, but I fear that here as elsewhere, it has been but poorly attended to.

On Wednesday, the 20th, we proceeded to Nipissing, 12 miles, called at School Section No. 1, Gurd and Pringle. The teacher reported no cases since January. Finding School Section No. 2 closed, I made enquiry at the nearest farmhouse; they reported it closed since December 21st, 1888, not to be re-opened until the expiry of six months, reason: prevalence of diphtheria.

At the Village of Nipissing I found two cases of the disease, in the household of Mr. A. McEachren; they had already lost two children, victims of this fell disease. At the time of my first visit, two children were ill, Agnes, *et.* 12, ill for a week, and May, *et.* 18, ill for two days. The house had been quarantined by the Local Board of Health; no medical man had been in attendance since my last visit; both the baby, *et.* 10 months and the son *et.* 14 years, have been attacked. In this house, as in nearly all those I have yet visited, I find it most difficult to isolate the cases. The houses, often consisting of one common room, are so roomed off where partitioning is resorted to, that the space within the four walls is like a *common* bedroom, kitchen, diningroom and parlour. However, when necessary, I have sheets hung around the bed, which are kept moist with a solution of carbolic acid.

The wife and six children of Mr. Armstrong, hotel keeper of this place, have all been down with this trouble, although they were convalescing at the time of my visit; this place I am having all cleaned, every room, and disinfected.

On Wednesday, February 20th, I visited Powassan, calling on Dr. Porter of that village, his own little boy is at present down with the disease; the doctor knew of no other cases then in or around the village, although he had had about 50 since the commencement of the year.

On Thursday, 21st, drove back to Commanda, 25 miles, calling on the cases at Nipissing on the road.

On Friday, 22nd, drove to Trout Creek and back, 30 miles, found one case there, had been ill for a week and had not received medical aid; the child was then dying from sepsis, and although I did all that could possibly be done in the way of food, better hygienic surroundings and medicine, yet I believe he died in the course of that same night. Before leaving I left full instructions with the parents what to do in case of the death of the child, and also as regards the disinfecting of the house. So soon as I can leave the cases now under treatment, I will visit the place again. One great trouble is that by reason of blocked roads the distance to be travelled is greatly increased, and travel is slow by reason of the heavy roads.

Saturday, 23rd, I drove again to Nipissing, where I found the remaining two of Mr. McEachren's family ill, (as mentioned in a preceding paragraph), the two girls were much better; in both cases the membranes, which when first saw them were firm and tough, had come away; in each case I had applied sol papoid, (4½ grs. @ zi.)

Five miles north-east on the Nipissing road, I found another case, Samuel Orton, *et.* 2 years, he had been ill for two or three days. In the house (18 x 20 feet) were three adults and six children, *one common apartment*. I quarantined the place, and as far as possible isolated the case; child and mother in one corner of the house, using a wooden partition, extending into the room for about 8 feet, and carbolized sheets.

(Area around Commanda infected by Diphtheria.)



This is a brief summary of my work thus far. So soon as the cases now will permit of my doing so, I will visit and clean, *if it be possible*, the farmhouses of those settlers living on the Alsace road, where the disease has made sad havoc amongst the younger portion of the community.

Trusting the foregoing will meet with your approval,

I have the honour to be,
Dear Doctor,
Yours truly,

CHAS. A. HODGETTS.

DR. BRYCE,
Secretary Provincial Board of Health,
Toronto.

COMMANDA, March 4th, 1889.

DR. BRYCE,
Secretary Provincial Board of Health,
Ontario.

DEAR SIR,—In continuation of my first report, I would review in this the second, the work done from February 24th to Saturday, March 2nd.

February 24th,—Visited the McEachren family in Nipissing; then drove five miles to see Mrs. Orton's child; all five cases were making satisfactory progress; returned that afternoon to Commanda, going from there to visit a Swiss family, three miles distant. The case, however, was not one of diphtheria, at least so far as I could glean from the symptoms and from an examination of the boy. It was most difficult to talk with the family, they being but poorly able to converse in English. I diagnosed follicular tonsillitis, however I took the precautions as if it were a case of diphtheria. It was night when I arrived. In the one common room was a blazing fire, the light from which was all they had to illumine the darkness; as no lamp was to be had, I viewed the throat by the faint flicker of burning slivers of pine.

February 25th—Was called at 5.30 a.m., to go to Nipissing, as the baby and son of Mr. McEachren were much worse. I remained at Nipissing all day, visiting this family three times; the last call at midnight. In the afternoon I visited Mrs Orton; then found the eldest of her girls down. The baby was slightly better.

February 26th—Visited the McEachren family and returned to Commanda. A message having arrived during my absence at Nipissing, asking me to at once proceed to Commanda Lake. After dinner I proceeded thither, (twelve miles); the case, however, was not one of diphtheria. (The people here seemed to have got so scared, that should they have any little trouble whatever with the throat, they jump at diphtheria.)

As there had been a number of cases in this District and the school had been scrubbed and cleaned at the request of the Secretary of School Board, that night I fumigated the place.

February 27th—Drove from the Lake this morning to Restoul, (two and a half miles) to visit the Clark family (supposed case); all however were well; then returned to Commanda; called to see the Atchison family; the children were very much improved.

February 28th—Returned to Nipissing, visiting the McEachren and Orton families. The baby of McEachren's had succumbed to the disease on Wednesday morning, and was buried with proper precautions a few hours subsequently.

March 1st—Drove to Orton's at 8 o'clock a.m., three children are now ill; the last two but slightly attacked; (as these children were weakly things, I had taken the precaution to put them upon a tonic treatment). Upon return to village, visited the McEachren's, who are slowly improving.

In the afternoon I drove down the river four miles to see two Indian families (reported cases). I found them all however well, with the exception of the oldest squaw who had been suffering from a very severe cold. I then returned to Commanda.

March 2nd—Drove three miles to see case diagnosed as tonsillitis; found the boy much better and the house much brighter, lighter and cleaner. The melted snow, instead of flooding into the house, was wending towards the larger stream in little rivulets.

I then drove fifteen miles to Trout Creek to inspect the hotel at that point, and see if instructions given had been carried out. I am pleased to report satisfactorily. Mr. B. has very carefully carried out my instructions; rooms have been cleaned; carpets, the pieces that were in bed-rooms burned, etc.; walls lime washed; each room fumigated; and he is to again wash floors and paint with a solution of hyd. puchlor. I feel I cannot be too particular with these inns or hotels, as I fear in the past they have been centres for the spread of the disease.

The foregoing is my weeks' work. The great trouble is for me to get horse and cutter, as at present all those fit for anything are busy in the woods, so perforce one has to be content

with anything. The roads in the early part of the week were heavy from drifts, while the sun of the past three days has done much to break them up; nevertheless, I have during the past two weeks covered over 300 miles.

As regards the water at Nipissing, I should like to have a sample of the river water analyzed as of this the majority drink; also a sample or two of well water. Will you kindly instruct me as to this matter.

All of which is respectfully submitted.

Yours truly,

CHAS. A. HODGETTS.

DR. P. H. BRYCE,
Secretary Provincial Board of Health,
Ontario.

COMMANDA, March, 10th, 1889.

MY DEAR SIR.—I have the honour to report the following, being my last week's work. Monday, March, 4th,—drove to Nipissing, where I visited the McEachren family, whom I found improving. The Orton family received two visits this day from me, the first being made about twelve o'clock noon, while the evening visit was at about nine o'clock.

I would here remark relative to the Orton and Harrington children, whom I described in my last report as being huddled together in a shanty 18x20, that since Mrs Orton's baby was taken ill the following others have had it, viz, Clara Orton, aged 13 years; Alice Harrington, aged 2 years; David Barr, aged 10 years, (hired boy); Jessie Orton, aged 5 years; of the five children, these three died, Samuel Orton, aged 2; Alice Harrington, aged 2; Jessie Orton, aged 5; the other two children are doing very well. In this family I fear the directions given (written out) were not faithfully followed, the mothers in their despair resorting to patent medicines and dieting in ways peculiar to themselves, in the last two cases they had ceased giving stimulants for the twelve hours preceding my visit. The only child that has escaped the disease thus far is the baby aged four months. The Local Board of Health attended to the burial of the bodies. In each case the body was buried as soon as the coffin could be made. In the case of one of the children I myself wrapped the body in a sheet soaked in sol. of hyd. puchlor, leaving sufficient in the house to saturate sawdust to pack around it.

March 5th.—I paid an early call on the Orton children and on returning to the village visited the McEachren family, afterwards returning to Commanda.

March 6th.—Not being able to hire a horse I was perforce compelled to remain at Commanda.

March 7th.—In a drifting snow storm I left this 8 a.m. for Eagle Lake, (20 miles); while on the way a messenger overtook me, asking me to visit a child ill at Rye P.O., Nipissing Road, 7 miles below Commanda. It proved to be a case of diphtheria. The child Olive Mullin, aged 3, lives at Nipissing and had only been removed a few days previously to where I attended her; the father informs me that for some weeks past he has kept his wife and two children upon an island on Lake Nipissing, thinking thereby to escape the trouble, but the house being cold he brought wife and baby home to it, bringing the little girl down here (20 miles).

In this case I was able to secure an isolated room with two members of the family to act as special nurses; there are no children in the household.

I arrived at Uplands P.O., Eagle Lake late in the evening.

My reason for visiting this place was, I had it reported that at least two families had scarlet fever.

March 8th.—I visited three families in this locality in two of which the children had been ill with the scarlet fever; and were now in the stage of desquamation.

The two families live about eighty rods apart; the disease appeared simultaneously in both houses, (3 weeks ago) in one that of Munroes. Dr. Toole of Sundridge saw the first case pronouncing it scarlet fever, the Church children he did not but sent them medicines.

The names are as follows, in order; Munroe's,—J. Alexander, *et. 8*; Percy, *et. 5*; Maggie, *et. 6*; Jessie, *et. 3*; Frank, *et. 4*; baby, *et. 10* months. Church's,—Charlie, *et. 5*; Martha, *et. 14*; Susan, *et. 7*; Francis, *et. 2*.

These families were very much astonished when I told them how dangerous it was for them to be mixing with other people and that they must consider themselves quarantined for a period of seven weeks dating from the time the last child took it. I gave instructions how to heat the children and left them some tonic medicine. I also visited the Quirt family, seven children, Muskoka Road, but found here nothing more serious than tonsillitis. This day (8th) I returned as far as Rye, when I remained up part of the night with the little girl (Olive Mullen).

March 9th.—Visited the child again this morning, afterwards drove nineteen miles to Nipissing; after tea visited the McEachrens and drove out to see the Ortons, the child Jessie dying while I was there; returned to Nipissing at eleven p.m.

March 10th.—Visited the McEachren family and then returned to Commanda.

The roads during the past week have been very heavy from the drifting snow storms which prevailed for the first three or four days of the week.

All of which is respectfully submitted.

Yours truly,

CHAS. A. HODGETTS.

COMMANDA, March 17th, 1889.

DEAR DOCTOR,—I have much pleasure in transmitting this my fourth weekly report re diphtheria outbreak in Parry Sound District.

March 10th, before leaving Nipissing I visited the McEachren family, all of whom were progressing favourably. Drove to Commanda in the afternoon.

March 11th, in the morning visited the child at Rye, and in the evening was called six miles to visit a child on the Westphalia Road. The child, Willie Bouler, aged 3½, presented no other symptom but that of slight fever (100° F.). It was in this house that the case of tonsillitis had occurred, which I reported two weeks ago. The family are Swiss, and live huddled together in the most miserable and dirty place it has yet been my lot to visit. I gave instructions to the parents to send for me should the child become worse, and that I would leave Commanda for Nipissing upon the Wednesday.

March 12th, again visited the case at Rye, which was progressing very favourably indeed.

March 13th, drove to Nipissing, and upon this and the 14th visited the Ortons twice, also the McEachrens. The infant of Mrs. Harrington, the only one not having had the diphtheria, was ill with pneumonia. The other two children (Mrs. Orton's daughter and hired boy) were doing well.

March 15th, returned to Commanda, and from there went to the Swiss family. It appears the child had taken worse on the Tuesday, but they had not called for me until the Thursday, and in the meantime, according to their own statement, they had given the child little or no nourishment, just because, to use their own words, "the child won't take it." This proved a case of diphtheria, the little boy dying from blood-poisoning and asthenia. I feel sure this case was lost through the stupidity of the parents. Either they won't understand plain English, or can't. In this case there appears more of the former than the latter. Now three others of the family are down with the malady. One great trouble in this case is to obtain sufficient milk for the children, the father having to travel miles for it, none of the neighbors about having milking cows.

The filth about this farmhouse is terrible. Now that the snow is melting the place is surrounded with stinking barnyard mud. The interior of the house is beautifully decorated with ancient cow dung. The house itself is about 15 x 24 interior measurement, and is the abode of eight or nine people.

March 16th, I visited the Rye case, driving afterwards to the Swiss family.

I am very much afraid, now the season has begun to break, that I shall have perhaps other cases very similar to the above. It would require a posse of police to keep watch and ward over some of these stupid foreign settlers.

Enclosed you will find a rough map of my district, with position of cases marked. Before my return I trust to be able to make one out more in full.

All of which is respectfully submitted.

Yours truly,

CHAS. A. HODGETTS.

P. H. BRYCE, Esq., M.D.,
Secretary Provincial Board of Health,
Toronto.

COMMANDA, March 24th, 1889.

P. H. BRYCE, Esq., M.D.,
Secretary Provincial Board of Health,
 Toronto.

DEAR SIR,—I have the honour to report as follows of my past week's work :—

March 17th, visited the Boulter family.

March 18th and 19th were spent in going to Nipissing, visiting the McEachren, Orton and Harrington families. I also went to Orton's house, inspecting it and giving instruction as to the proper disinfection of the same.

At Nipissing I inspected Mr. Armstrong's Hotel, which he had finished cleaning and disinfecting.

It was late in the evening of the 19th when I arrived back at Commanda, the roads being very heavy, necessitating my walking for some miles.

March 20th, visited the Boulter family, whom I found slowly improving.

March 21st, visited the case at Rye, from which place I visited a family some two miles back in the bush, reported to be down with diphtheria, but am happy to report the said to be incorrect. (The people are so panicky that with the least sore throat they send for me, necessitating my travelling many miles. Of course I must go to make sure).

March 22nd, 23rd and 24th, each of these days I visited the Boulter family, having to walk the greater part of the distance each day, there being no farmhouse near by where I could remain the night.

These children are slightly on the mend; their constitutions are so frail that convalescence will be somewhat prolonged.

I am pleased to be able to report no new cases during the past week.

I find that the majority of the children throughout this district have never been vaccinated. Could I not be furnished with vaccine, and let it be known that the children could be vaccinated by me? Such a measure might save further trouble in this district as far as regards smallpox.

I have the honour to be,
 Yours truly,

CHAS. A. HODGETTS.

COMMANDA, March 31st, 1889.

DR. P. H. BRYCE,
Secretary Provincial Board of Health,
 Toronto.

MY DEAR DOCTOR,—I have the pleasure of submitting my weekly report as follows :—

Sunday, March 24th, I visited the Boulter family, walking the six miles, as the road was impassible with a sleigh or buggy.

Monday 25th, I went to Nipissing, inspected Mr. McEachren's house and released them from quarantine; also visited a supposed case a mile out of the village.

Tuesday, 26th, early in the morning was called to a case of sore throat; walked the five miles to Harrington family; also inspected Mr. Orton's house, which had been thoroughly disinfected and cleaned.

Wednesday, 27th, in company with the Secretary of the Local Board of Health, I visited two supposed cases some six miles from Nipissing, on the Powassan Road. There, however, proved to be no truth in the report as given to me by a neighbour. We afterwards inspected the houses upon Alsace Road, Township of Nipissing, in which diphtheria had been. Two of the four had been properly disinfected and lime-washed within; bedding and clothing also. Another had been washed simply. Here I ordered the walls to be limed within, and all the clothing and bedding disinfected. At the fourth house, Schafers', in which six children had died, I found nothing had been done, and the husband was away in the shanties. The woman could not understand English. In this case I will see the Local Board, which meets in Nipissing to-morrow, and take steps at once to put the shanty in a proper sanitary condition.

Thursday, March 28th, from Alsace Road I returned to Nipissing, having to change from sleigh to wheels. From there I returned to Commanda.

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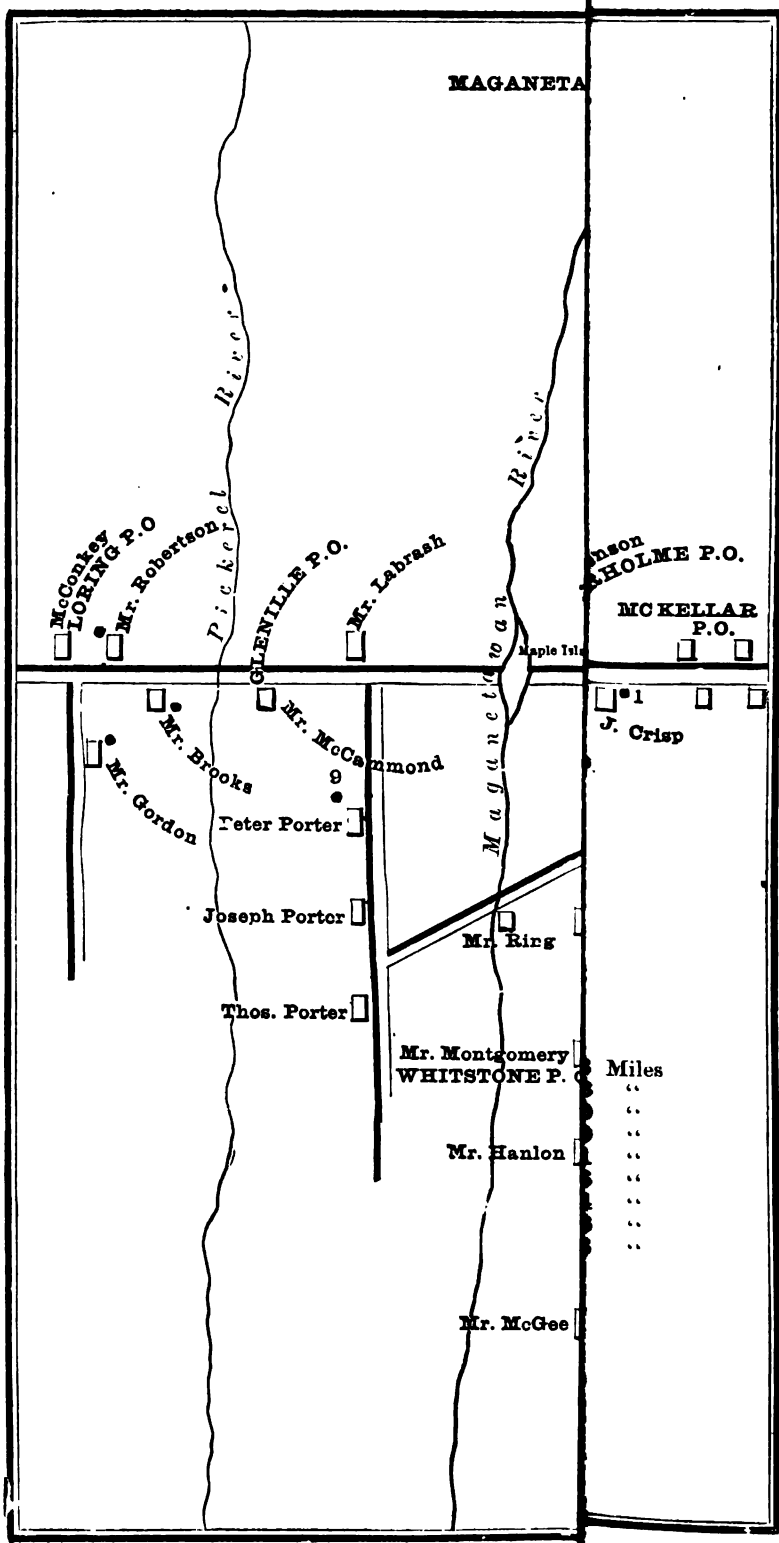
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Friday, March 29th, I visited the Boulter family and found that the baby was now ill with the disease. Before going I had replied to your letter in which I reported only three cases in this house. This now makes a fourth in the first week of the disease.

Saturday, I again visited the Boulders, returning to Commanda and driving to Rye to see the child Mullin, who will be free on Tuesday next. In this house the house and clothing has been fumigated, bedding burned, bedstead washed with hyd. puchlor, and rooms lime-washed.

The Boulter family are in wretched circumstances. I have had to provide them with milk, etc. If no fresh cases occur I think perhaps I might see this family over and then return. They are some sixteen miles from any doctor.

With kindest regards,
I remain yours truly,

CHAS. A. HODGETTS.

COMMANDA, April 9th, 1889.

DR. P. H. BRYCE,
Toronto.

MY DEAR DOCTOR,—In prospect of my returning next Monday to Toronto, I have completed disinfecting the houses, and have spent the last few days visiting the houses in the Barrett Settlement, where cases occurred some months ago. Travelling, however, is very difficult now, on account of the breaking up of the roads.

The Bôler family are now doing well.

No new cases have been reported.

With kind regards,
I remain, yours truly,

CHAS. A. HODGETTS.

DUNCHURCH, PARRY SOUND DISTRICT. February 19th, 1889.

PETER H. BRYCE, M.D.,
Secretary Provincial Board of Health,
Toronto.

DEAR DOCTOR,—I arrived at Burk's Falls at 12 o'clock on Friday evening.

On Saturday morning, following the instructions of the Provincial Secretary, I called upon Dr. Caughell, and consulted with him as to the best mode of operating in the affected districts, and as to the locality where it would be advisable for me to locate.

Dr. Caughell thought it unnecessary to spend any time in visiting different localities, but advised me to proceed at once to Dunchurch, where it was reported the epidemic was just breaking out, and I accordingly acted upon his advice.

Mr. Armstrong, who represents Parry Sound District in the Provincial Parliament, also advised me to locate at Dunchurch.

Providing myself with a small quantity of drugs, as my stock from Toronto had not arrived, I immediately set out for Dunchurch, and reached here at 6 o'clock on Saturday evening.

Dunchurch, situated on Whitestone Lake, is a small village, but contains a large number of children, there being over 70 names on the Public School register.

Two deaths had occurred from diphtheria previous to my arrival; Katie Kelsie, aged 12 years; William Kelsie, aged 10 years. Two children were suffering from the disease at the time of my arrival; John Burns, aged 13 years; Clarence Hughes, aged 14 years.

On Sunday afternoon, I was called to see Geo. Rae, aged 17 years, and found well marked symptoms of diphtheria. I at once isolated him from the rest of the family, with the exception of one attendant.

On Monday, I closed the Public School, the store owned by Mrs. Kelsie, where Clarence Hughes is confined, and the hotel of John Burns, father of the patient John Burns.

All intercourse except that which is absolutely necessary, is prohibited with the houses in which the disease is located, and isolation enforced to the fullest extent possible, and I am hoping to prevent a further spread of the disease.

At Loring, 30 miles north of Dunchurch, the disease has committed terrible ravages; but there is a lull at the present time. I have sent 80 pamphlets, and if there is any fresh outbreak, I will try and visit Loring, twice a week.

Please send me 50 more pamphlets on "Rules for checking the spread of Contagious or Infectious Diseases."

I remain,
Yours respectfully,

WILLIAM R. WADE, M.D.

DUNCHURCH, PARRY SOUND DISTRICT, February 26th, 1889.

P. H. BRYCE, M.D.,
Secretary Provincial Board of Health,
 Toronto.

DEAR DOCTOR,—Since sending my report last week, I have had two new cases of diphtheria: Rachel Wylie, aged 17 years, living five miles south-east of Dunchurch, and Mina Moore, aged 13 years, living four miles south of Dunchurch; both cases I believe received the contagion from Mrs. Kelsie's store, which, as I stated in my last letter, was closed a week ago yesterday.

Both the new cases, as well as the older ones are progressing favorably.

I received a call last evening from Dr. Caughell, as he was returning from the north, where he has been working with Dr. Hodgetts. He stated that Dr. Hodgetts needs assistance badly, but agreed with me in thinking that it is necessary for me to remain here several weeks longer, in order to carry out the precautions necessary to prevent a further spread of the disease.

I have only a few cases, as you will see by my reports, but they are so widely separated, and the roads are in such a bad condition, that it requires nearly all my time to look after them properly.

I have secured a horse and cutter, and on Thursday or Friday, if my patients are in such a condition that I can leave them for a couple of days, I intend visiting Loring, thirty miles north, for the purpose of fumigating the houses where the disease has been located, and for giving any instructions that may be necessary in connection with the disease in that place.

I remain,
 Yours respectfully,

WM. R. WADE, M. D.

P. S.—I received to-day the fifty pamphlets on "Rules for preventing the spread of Contagious and Infectious Diseases."

DUNCHURCH, PARRY SOUND DISTRICT, March 5th, 1889.

PETER H. BRYCE, M.D.,
Secretary Provincial Board of Health,
 Toronto.

DEAR DOCTOR,—Your letter of March 1st received to-day. I will not be able to send the diagram you require with this report to-morrow morning on account of the shortness of time in which to prepare it, but will send it by the next mail, which leaves here on Friday morning.

I have had one new case of diphtheria since sending my last report—Peter Porter, aged 28 years, residing about eight miles north of Dunchurch; he, I believe received the infection at McConkey (Loring).

All of my cases are doing well, the majority of them being convalescent.

On Friday last I went to McConkey, thirty miles north, and returned on Saturday; there are no cases of diphtheria there at present. All that is required at that place now is to disinfect the houses in which the disease has been located, and I intend visiting McConkey again next Friday for that purpose.

There have been seven deaths at McConkey from diphtheria—so the people state—but I did not obtain the names of all the deceased. Two of the patients who recovered are suffering from diphtheritic paralysis which I will treat on my next visit, since I did not have the necessary medicines with me last week.

I remain, respectfully yours,

W. R. WADE, M. D.

DUNCHURCH, PARRY SOUND DISTRICT, March 12th, 1889.

DR. PETER H. BRYCE,
Secretary Provincial Board of Health,
 Toronto.

DEAR DOCTOR,—Enclosed you will find a rough diagram of this district. It is not necessary for me to say that I am a poor hand at drawing as my diagram shows it. On account of the number of patients and the distances I had to drive to see them I was unable to send the sketch at the time I mentioned in my last letter.

Since sending my last report I am sorry to say I have had three fresh cases of diphtheria—George Crisp, aged seven years; Wm. Crisp, aged ten years; Alice McAllister, aged twelve years. The disease has not shown itself at Dunchurch since I came here, but breaks out in the surrounding settlements notwithstanding all my efforts to subdue it. George and Wm. Crisp live at Fairholme, seven miles south of Dunchurch, while Alice McAllister lives at Whitestone, eleven miles north-west of Dunchurch.

I have to report all my cases doing well, except Alice McAllister, who is in rather a critical condition, but I do not anticipate a fatal termination of her case.

I was unable to visit McConkey last week, but will endeavour to do so next week if I have no new cases in the meantime.

As you will see by my reports, I have not a large number of patients to attend but the distances I have to drive to see them, and the condition of the roads, take up so much of my time that I am busy from early morning till late at night, and I often find it necessary to use two different horses for one day's driving.

Awaiting any instructions you deem it necessary to give,

I remain, yours respectfully,

W. R. WADE, M.D.

DUNCHURCH, ONT., March 19th, 1889.

PETER H. BRYCE, M.D.,
Secretary Provincial Board of Health,
Toronto.

DEAR DOCTOR,—This week I have a more satisfactory report to send. I have had no new cases of diphtheria since sending my last report and my patients are all doing well, so well that after this week I do not think they will require medical attendance. By Saturday evening I will have fumigated thoroughly, I believe, all the houses in which the disease has been located, except that of Mr. Jonathan Crisp, Fairholme, and Mr. Leitch, Whitestone, where Alice McAllister has been confined. It would of course be too early to fumigate these two houses, but the people are very intelligent and agree to carry out my instructions minutely with reference to fumigation, disposal of bedding, etc., after I supply the required amount of sulphur, viz. three pounds for every thousand cubic feet of space.

On Sunday night I went to McConkey, reaching there at six o'clock Monday morning, and returned Monday night. The roads are in such a state that travelling by day is almost impossible owing to the heat of the sun thawing the snow, which is still very deep in some places, and allowing a horse to sink down, but the frosts at night renders the roads more passable. Between seven o'clock in the morning and eight o'clock at night I fumigated all the infected houses at McConkey.

The following are the names of those who died of diphtheria at McConkey:—Frances Robertson, aged three years; John O'Reilly, aged twenty-four years; Martha Curry, aged seven years; Livinia Brooks, aged seventeen years; Laura Gordon, aged two years; Lizzie Forsyth, aged five years; Lucy Forsyth, aged two years.

The school here at Dunchurch was opened on Monday last.

If no new cases appear I hope to be able to report at your office in person on Tuesday next.

I remain yours respectfully,

W. R. WADE, M.D.

DUNCHURCH, ONTARIO, March 25th, 1889.

PETER H. BRYCE, M.D.,
Secretary Provincial Board of Health,
Toronto.

DEAR DOCTOR,—Your letter of the 21st to hand on Saturday evening.

In my last report I stated that I thought of leaving for Toronto to-morrow, Tuesday, but would have been unable to do so even had I not received your letter as I have had two new cases of diphtheria since sending my report; as it is I will now await a letter from you advising me as to the time you think proper for me to leave.

The two cases above mentioned are Frank Crisp, aged 3 years, and Mary Crisp, aged 15. Both of these are mild cases and I anticipate a speedy recovery. The reason that the disease has spread in the Crisp family, is that isolation was practically impossible on account of the small size of the house and absence of partitions in it.

I have fumigated all the houses where the disease has been except that of Mr. Leitch, Whitestone, and Mr. Crisp, Fairholme; Alice McAllister who was confined in Mr. Leitch's house has been up for over a week and I will see to the fumigation of that house before I leave. Mr. Crisp agrees to follow minutely my instructions with reference to fumigation, disposal of bedding etc., so that I think it safe for me to leave some time this week.

The above mentioned are the only cases of diphtheria in this district, and I believe there is no danger of a further spread of the disease.

Awaiting instructions from you,

I remain yours respectfully,

W. R. WADE, M.D.

In order that some permanent method for promoting and maintaining the health of these districts may be adopted, the Minister of the department introduced at the suggestion of the Board, the following Bill which became law.

AN ACT TO AMEND THE PUBLIC HEALTH ACT.

Her Majesty, by and with the advice and consent of the Legislative Assembly of the Province of Ontario, enacts as follows:—

1. Every Stipendiary Magistrate already appointed, or who may hereafter be appointed under the provisions of "The Unorganized Territory Act," shall be *ex-officio* a Medical Health Officer in and for the district for which he has been, or shall be, appointed, and shall possess all the powers of such an officer under the provisions of "The Public Health Act."

2. The Provincial Board of Health may also, subject to the approval of the Lieutenant-Governor-in Council, appoint in any of the unorganized districts one or more sanitary inspectors under "The Public Health Act," who shall possess the powers conferred upon sanitary inspectors under "The Public Health Act," and also all the powers conferred upon Local Boards of Health by section 14 of the said Act.

3. All constables appointed for any Provisional Judicial, Temporary Judicial or Territorial District under "The Act respecting Constables," chapter 82 of the Revised Statutes of Ontario 1887, shall be *ex-officio* sanitary inspectors with the same powers as sanitary inspectors appointed under this Act.

Upon the withdrawal of the Medical Inspectors, your secretary transmitted the following memorandum for the consideration of the Minister. What practical conclusions may be arrived at in the matter, cannot yet be stated as many points demand consideration; but it is hoped that the good beginning made will be continued.

The following is the memorandum:—

Hon. Mr. Gibson:

April 15th, 1889.

DEAR SIR,—I have the honour to bring to your notice the outline of a scheme which, if approved, will be the beginning of a systematic work which will be of great permanent benefit, both in saving of life and expense to the settlers of frontier districts; also, at once the solution of a difficult problem which has become more urgent from year to year.

I have had drawn up, and herewith attach for your inspection, a table showing (where obtainable) the municipal statistics of the population and annual expenditure in the four Districts of Muskoka, Parry Sound, Haliburton and Nipissing.

From it you will gather (1) the relative number of organized and unorganized townships; (2) the population (where obtainable) of the organized townships; (3) the amount of moneys annually expended in each and the rate per capita.

Summarized we learn that :

Muskoka.

| | | |
|-----------------------------------|----------|--------------------|
| Townships | 22 | |
| Made returns | 14 | |
| Villages | 3 | |
| Population, townships | 9,995 | |
| " villages | 3,661 | |
| Total taxes of 14 townships | \$24,678 | = 2.47 per capita. |
| " 3 villages | 15,514 | = 4.24 " |

Parry Sound.

| | | |
|--------------------------------|----------|--------------------|
| Townships | 44 | |
| Organized | 9 | |
| Returns | 9 | |
| Villages | 1 | |
| Population, townships | 4,961 | |
| " villages | 1,329 | |
| Total taxes of townships | \$14,988 | = 3.02 per capita. |
| " villages | 5,186 | = 3.90 " |

Haliburton.

| | | |
|--------------------------------------|----------|------------------|
| Townships | 18 | |
| Organized | 9 | |
| Made returns | 9 | |
| Population, townships | 5,573 | |
| Total expenditure of townships | \$20,364 | = 3.65 per head. |
| Villages | None. | |

Nipissing.

| | | |
|--------------------------------|---------|------------------|
| Townships | 51 | |
| Organized | 6 | |
| Returns | 6 | |
| Villages | 1 | |
| Population, townships | 3,711 | |
| " villages | 989 | |
| Total taxes of townships | \$6,892 | = 1.86 per head. |
| " villages | 2,191 | = 2.22 " |

This includes only the country south of Lake Nipissing and the Ottawa River, and for the present I shall limit my study to this district.

| | Population. | Population of townships. | |
|-------------------|---------------|-----------------------------|-----------|
| Muskoka | 13,656 | or 9,995 = 14 townships. | |
| Parry Sound | 6,290 | " 4,961 = 9 " | |
| Haliburton | 5,573 | " 5,573 = 9 " | |
| Nipissing | 4,700 | " 3,711 = 6 " | |
| | <u>30,219</u> | <u>24,240</u> | <u>38</u> |

Leaving out the villages in the calculation we have 38 townships each ⁹ miles square, occupying with the 97 unorganized, roughly, 12 townships north and south by 12 east and west or about 108 miles square. As will be noticed by a glance at the

accompanying map, the organized and unorganized townships are not in any particular part of a district, and it would be wholly wrong to assume that the unorganized have no populations, since we have learned that many of the latter have populations equal to those of the former. From information gained through various sources, we estimate the population of the unorganized townships at probably half that of the organized. This would give us, roughly, a population over the districts of 24,000 in organized, and 30,000 in unorganized. But allowing for errors and assuming 50,000 of a population, we then have a population of 50,000 distributed over, say, 108 miles square or over 11,664 square miles.

It will be practically correct to say that we have five persons for every square mile of the whole district or one family of five. This is at the rate of about 400 of a population to each township. Comparing this with an old county with townships having about the same area as, say, the County of Ontario, and we find a population of nearly 3,000 per township in the latter. In the nine organized townships of Parry Sound of about the same area as Ontario County, the value of real property is assessed at about \$822,347, while the latter has an assessed value of \$15,792,740. Hence with a population seven times as great, and a wealth per township twenty times as great, the per capita municipal expenditure in Ontario County is only \$3.63, while that in Parry Sound is \$3.02, or an average total per township of \$1,600 to be expended for all purposes. The real property assessed in Parry Sound District has an assessed value equal to \$165 per capita.

This latter fact illustrates the next point to be referred to viz., the necessarily poor character of the houses. Shanties of one room frequently are the abode of families of five or more members.

The reports of our physicians have, if more than a statement of the fact were needed, illustrated the difficulties of treating contagious diseases under such circumstances. Every susceptible person must inevitably become a victim of the disease, and general reports in addition to those of the above relate, unfortunately too well, the enormous percentage of deaths as compared with treatment under proper conditions.

Another point which presses for prompt consideration is the fact that some thousands of lumbermen and river-men are annually engaged in these districts, and that when they become ill (and the crowded shanties in several districts have become *foci* of diphtheria) the absence of medical aid demands that the sick, for the safety of the others, be sent away. They go to the nearest settlement (as I have multiplied evidence causing me to know), from house to house, and from public conveyance, as stage, rail-car, etc., infecting here and there persons and so spreading the disease, as has been done within three or four years from one end of this district to the other.

The sparsity of population, the broken roads, and the poverty of the settlers (as our figures show) result in a scarcity of physicians to a degree which makes attendance upon diphtheria cases at far off distances almost impossible, since they require prompt attention with careful and intelligent nursing under favourable conditions, and none of these usually are available.

The points at which physicians have settled are mostly along the two railways running north and south, the Northern extension, and the Victoria Railroad north from Lindsay.

There are five colonization roads in the district, the Parry Sound, the Rosseau and Nipissing, the Victoria, the Hastings Road, and the Ottawa and Opeonga, and to cover these 10,000 square miles we have physicians at :—

HALIBURTON DISTRICT.

Dr. Frost, Kimount,

Dr. Curry, Minden.

MUSKOKA DISTRICT.

Dr. Bridgland, Bracebridge,
Dr. Williams, Gravenhurst.

Dr. Hart, Huntsville.

 PARRY SOUND DISTRICT.

Dr. Toole, Sundridge,
 Dr. Walton, Magnetawan,
 Dr. Applebe, Parry Sound,
 Dr. Walton, Parry Sound,

Dr. Porter, Powassan,
 Dr. Robbins, Burk's Falls,
 Dr. Caughall, Burk's Falls,
 Dr. Holmes, McKellar.

NIPISSING DISTRICT.

Dr. Deebe, Sturgeon's Falls,
 Dr. Carruthers, North Bay,

Dr. Benoit, Mattawa,
 Dr. Earle, Mattawa.

Manifestly, therefore, we have need to lend aid in those districts where none such are, and, since the people are so poor and the population, from successive years' statistics, does not seem to be increasing, where none are likely to settle.

Without discussing the value of the services which an occasional physician sent into a district may perform, I think I may say that such temporary services are both expensive and unsatisfactory. Adopting the plan of bonusing physicians for working in a district would, I submit, be an ill-advised measure, unsatisfactory in results, and would cause an increasing and endless amount of trouble.

There is remaining to us for adoption the system which is practised in our cities and towns for the treatment of indigents, and for those persons suffering from contagious diseases, who, as the law provides, are taken to isolation wards of hospitals when they are likely to become dangerous to the health of the community.

I need not quote statistics, which are abundant on this point, but I need only indicate the positive advantages which the establishment of such hospitals at central points would have.

1st. They can be constructed at small cost. One at St. Catharines, of ample size, did not exceed in cost \$750. Such would probably be cheaper in the north.

2nd. They would be open to patients from the whole district, who for a nominal weekly fee would be supplied with wholesome food, lodgings and medical attendance, while the work of a physician would be concentrated and his results satisfactory. To illustrate the latter I may point out that when in 1888, at the Penetanguishene Reformatory, 65 boys out of 200 became affected with diphtheria there was not one death, while in the three houses of the attendants, into which the disease was carried, there were two deaths.

3rd. First cases of infectious disease would be brought there. If a child, then its mother would come too, and be carefully attended, their houses being saved from becoming centres of the disease and sources of infection.

4th. The men from the shanties and river-drives would have a place to go to for treatment, and the charges could be made upon the companies who, like railway companies, would collect a per capita tax from the men.

5th. The stipendiary magistrates would by such means be enabled as health officers to enforce isolation more efficiently by sending the sick to these houses of recovery, and have good grounds for punishing persons who wilfully might expose others to infection.

6th. Thus persons would, from knowledge gained in these hospitals, learn something of the nature of disease, and how to prevent it.

7th. By a grant not exceeding that given to our smaller hospitals at present, as Mattawa, etc., small hospitals could be carried on, while the adoption of the principle would ensure, at least in the Dunchurch District of Parry Sound, that Dr. Wade, who has given satisfactory service, settle there as a practitioner, if the amount of \$500 be granted for the maintenance of a small hospital.

8th. There is but little doubt that it will be possible to get young physicians to locate in other centres if similar provision be made for the establishment of hospitals in them.

9th. This amount expended would not exceed the amount paid to a single physician for two months' work if we include in it salary, all expenses, medicines, etc.

The provision for such grant exists under chapter 248, R.S.O. *re* Aid to Charitable Institutions.

As it is very desirable that early action be taken, in order to secure Dr. Wade's services for Dunchurch, as he will within a few weeks decide on his future field for practice, I shall feel greatly obliged if you will appoint an hour for discussing this matter with Mr. Christie, Inspector of Public Institutions, and myself, and shall be glad if he be invited to be present.

I have the honour to be,
Your obedient servant,

PETER H. BRYCE,
Secretary.

The report was adopted.

3. Anthrax.—The following correspondence shows the nature and persistency of this disease which has obtained a firm hold, as appears in the Guelph district. In close connection therewith, and owing to the fact, as illustrated in one of the letters, that hides were taken from the dead animals and sold secretly, the animals being buried without proper supervision, is printed a letter from a prominent Guelph physician drawing attention to the dangers which may most readily result from the use of impure wool in mattresses. Should such waste come from factories where wool infected with anthrax or other infectious disease had existed, or from the shoddy mills where infected cloth had been used, it is by no means an improbable case that should disinfection be neglected, most serious results would follow. Unless an expert were appointed under the Board or under the Factories Act to carefully enquire into these matters, we fail to see how the dangers from such sources are to be obviated.

GUELPH, 2nd June, 1888.

DR. P. H. BRYCE,
Toronto.

DEAR SIR,—The Guelph township Board of Health met again to-day. Four new cases of anthrax have occurred—all directly traceable, my father thinks, to animals buried last year or before. He wishes to ask, can anything be done to disinfect the ground? One of the losers is very anxious to try inoculation if proper virus can be obtained. Can this be done? Would your Board of Health for the Province do anything in the matter? Mr. Parsons and Mr. Dawson are again the losers. The animals have not been burned as far as I can learn.

Yours truly,

D. McCRAE.

(Transferred to this Department.)

GUELPH, 6th September, 1888.

HON. CHAS. DEURY,
Department of Agriculture, Toronto.

DEAR SIR,—You spoke to me about the imported Southdown ram. He died on the farm. My father remembers the circumstance.

Anthrax has been bad again. I heard last night about two cows belonging to people in town that died lately—believed to be from anthrax. They had been pasturing on the flats where it seems to be epidemic. When they died they were given to some one who dragged them away for their hides. I doubt if any present law will allow this to be prevented. If there is please let me know about it. I have looked over the Health Act, but to me it does not seem clear.

Yours truly,

D. McCRAE.

GUELPH, 10th September, 1888.

DR. P. H. BRYCE,
Toronto.

DEAR SIR,—Since writing you re removal of animals dying from anthrax, I have seen Capt. Clark. He informs me that he had the carcasses removed by lorry to the refuse ground and buried in the heaps of manure, being made, I presume, for sale. This did not commend itself to me as quite satisfactory, though Capt. Clark was quite sure it was all right.

I do not share your views as to the powers of the Board of Health in this matter. These last were in the city and, therefore, under the health officers here.

Yours truly,

D. McCRAE.

GUELPH, October 22nd, 1888.

DEAR SIR,—I send herewith a sample of the wool batting found in a mattress direct from the manufacturer's hand. I am informed that all the upholsterers use it in making up mattresses, excepting those of curled hair, which are very expensive. On inspection you will see that it is really a collection of the dirty odds and ends about the floor of a woollen factory (including the sweepings). It has a musty, offensive smell and cannot but have a most pernicious effect on the health of the unfortunate people who have to sleep on such a bed. It taints even the air of the room, and I am not sure that it may not often enough be the hidden cause of some of the diphtheria that we meet with.

The existing laws require medical men to report every case of diphtheria, yet the manufacturer for his own gain is allowed to fill a mattress with refuse, and send it, with all its germs of filth, to be slept upon by unsuspecting people. This infernal greed for *filthy lucre* will stop at nothing unless exposed. Will you kindly look into the matter? Probably it will be found that all made up furniture is stuffed with something of no better origin or quality.

Could not the Provincial Board of Health bring such pressure on the Government as to have an inspector appointed wherever such manufactories exist? Let such inspector go armed with power to prevent all such abominable outrages upon the health of the unsuspecting public.

With kind regards, I am,

Very sincerely yours,

The following is the reply of the Sanitary Inspector, Guelph, to a request of Dr. Bryce to supply the latter with any facts regarding animals that died during the past summer:—

“With regard to the information you ask for, I do not know whether the animals died from the disease called anthrax or not, and I am unable to find out from the parties who owned these animals what was the cause of death. The information which I received was as follows:—

Case I.—Thomas Simpson, butcher, states that his beast was turned out on the flats in the morning, and at night when it came home he noticed that the animal would neither eat nor drink anything and he put it in the stable for the night, and the next morning it died. He had it skinned and sold the hide to Mr. Stull, a man who follows that business on the Guelph market. The carcass was taken to the nuisance ground and buried by the nuisance contractor.

Case II.—Mr. T. Ellis, butcher, states that his beast died on the flats. It was quite well in the morning when he put it there at 8 o'clock, and at 11 o'clock, a.m., it died. He skinned it and sold the hide and buried the carcass four feet deep in the ground.

Case III.—Mr. Gibson states that his cow was grazing on the same flats as the others and she was brought home in the morning, milked, and fed, and afterwards it was turned into another field close to the house. He did not notice anything the matter with it then, but it broke out of this field and got to the flats again, and he saw it go direct to the river and drink freely, after which it came back amongst the other cattle; this was about 12, noon, and at 2 p.m. it was found dead. It was skinned, hide sold, and carcass buried.

Case IV.—Mrs. Olson states that her cow died under similar circumstances as that of Mr. Gibson's, only that her's was brought home at night; but she noticed that the cow was sick and would not give any milk. The cow was kept in the stable and was attended by a veterinary surgeon, and was sick three days before she died. She was skinned, hide sold, and carcass buried.

Case V.—Mrs. Brisbane states that this year she lost two fat pigs, and last year she lost 12 pigs, 1 cow, and 1 horse, all on the same flats. The two that died this year were noticed to be rooting up the ground on the same spot where Mr. W. F. Stone buried one of his cattle last year which died from the same cause as the others, and these pigs died two days after they had been rooting up this spot. They were buried three feet under ground.

Case VI.—Mrs. McShane states that she lost one cow and that it was grazing on the same ground as the others. The cow was brought home at night and would not give any milk. She put her into the stable and the next morning she was found dead. It was skinned, hide sold, and carcass buried.

This is the number that have died this year, and this is about all the information that I can give you. There are a great many opinions about this matter; some are inclined to think that the river has something to do with it, while others hold different opinions, but a good many would like if you could come up and meet all those gentlemen who are interested in this matter, and those who own the ground where this disease is supposed to be, and talk the matter over and find out what is best to be done.

Regarding the means for stamping out anthrax in the Guelph district little more can be added to that printed in the report for 1887. If the pastures are to be used for grazing then inoculation would seem to be the sole prophylactic measure. Proper disinfection of animals dying in future may be insured, and it ought to be possible, in large measure, to protect animals against inoculation from grazing over the places where animals have been buried. The question of who is to deal with the matter seems as yet, however, not to be settled, and we await some avenue by which active steps in the matter may be taken.

II.—NOTIFICATION OF INFECTIOUS DISEASES.

It would be improper to leave the subject of outbreaks of disease without referring to notification of disease. Notification in its operation has three points for consideration, (a) notification by the physician and householder; (b) notification by local boards and their officers of Provincial Board, and (c) notification by the Provincial Board of contiguous Provincial and State Boards.

Regarding the first, fortunately the law in Ontario is very precise and exact in its terms, and supplies a ready means by which local authorities and their officers can become acquainted with the prevalence of dangerous disease in their midst. As we are well aware the growth of the principle in England and elsewhere has not been rapid, but the past few years have seen decided advances, until now there are fifty-six urban sanitary districts in which notification is compulsory, and we are able to obtain therefrom a complete monthly history of disease amongst some four and a half millions of people. While the adoption of the principle has been voluntary there for these districts, the systematic way in which the law is carried out is, in some degree, at variance with experience in America, but especially to that in those cities of the Union where the law is enforced, and to some extent in urban municipalities in Ontario. Yet in these latter yearly advances have been made, and many towns can congratulate themselves on a notification which is tolerably complete. The chief defect here, as perhaps elsewhere, is that most of the Medical Health Officers are practitioners, and a sometimes reasonable objection is made that such an officer is legally in a position to injure a fellow practitioner. The obvious remedy here is that such officer have his whole time devoted to public health duties; but as this will be, in many places, little likely to take place for some years yet, the difficulty is readily, and indeed, in many cases even now, practically overcome by the officer assigning to the Sanitary Inspector the duty of enquiring into the sanitary conditions and the

isolation of houses, and leaving the execution of details largely in the hands of this officer. Perhaps, however, the greatest and more reasonable excuse for non-notification in Ontario by physicians is the knowledge that defective measures exist for isolation, inspection and disinfection in those instances where notification is made. There must, in order that such notification be of value for statistical, or indeed for any purpose, be an organized sanitary corps so equipped that they practically relieve the attending physician of the work of isolation and disinfection. Such is done in England and in some other places, with the result that in those towns where notification is compulsory, most marked diminution in the mortality has already taken place. The primary advantage of the method is that it supplies a ready means whereby the poorer and improvident classes in the community may receive medical attendance and nursing by their removal to an isolation hospital, and further be prevented from becoming a menace to the public health by spreading the disease.

To illustrate the results of isolation, comparative statistics were given of individual places in our report for 1887, but the following from the returns for forty-five urban sanitary districts in England and Scotland for the month of February, 1889, is equally significant:—The annual mortality from all causes in these towns averaged 17.0 per 1000. This death-rate is 2.6 per 1000 below the mean rate last month in the twenty-eight large English towns dealt with by the Registrar-General in his weekly return, which was 19.6 per 1000. The death-rate from the eight infectious diseases dealt with averaged 0.7 per 1000, and showed a decline from the rates of the previous three months. These figures are most instructive, and present a marked contrast with many American cities of a very much less average population. There is one other marked defect, apart from imperfect notification, which Local Boards in America must remedy before great improvement in results can be expected, which is in the period of time a patient who has had the disease must remain isolated before mingling with persons susceptible to the disease from which he has suffered. With regard to several diseases, notably smallpox, there is but little difficulty, but in the instance of mild scarlatina, measles, and mild forms of diphtheria, physicians, but especially patients, are greatly inclined to allow the sick to mingle with the well as soon as the more acute symptoms of the disease have passed off. There is no more constant cause of dispute between Local Boards and those in charge of the patient than this, and no one cause of appeal to your Secretary *re* the powers of a Local Board more common than it. The evil is far-reaching and has most serious effects upon the prevalence of disease. Through it the work of disinfection, too often of a perfunctory character, is carried out before the stage of infectiveness of the skin and mucous membranes of a patient have passed. This done the person is allowed to be present in all other parts of the house as well as the sick room, and mingle with other members and see callers; and further, in many instances, goes to school, church and public places, and so carries the infection to others who are susceptible. It is at once readily conceded that it is often inconvenient, and in some instances a hardship, especially where the sick is a wage earner, for persons to be isolated for the time necessary for the safety of others; and oftener still harder for other members of a family to be under surveillance or quarantine on their account. But in all such cases, not only is the public safety the only question which can be considered, but it also may be said that when the alternative of having the patient removed at once to an isolation hospital is offered, not only is such isolation reasonable, but it ought to be rigorously maintained, since thereby it will be one of the first means by which the public will be taught that it is for the individual benefit, the family safety and economy and the public good that such patients be removed at the earliest moment to some house of recovery. Says Dr. George Buchanan, Medical Officer Local Government Board of Great Britain, in his last general memorandum, (April, 1888), "On the Proceedings which are advisable in places attacked or threatened by Epidemic Disease."

"11. All reasonable care should be taken not to allow infectious disease to spread by the unnecessary association of such with healthy persons. This care is requisite not only with regard to the sick-house, but likewise with regard to schools and other establishments wherein members of many different households are accustomed to meet.

"12. If disease begins in houses where the sick person cannot be properly accommodated and tended, medical advice should be taken as to the propriety of removing him to an infirmary or hospital. *Every sanitary authority should have in readiness a hospital for the reception of such cases.*"

"17. Provision by the public authority for disinfection by heat of bulky articles, and of those which cannot without injury be exposed to chemical agencies, ought always to be in readiness. Without such no complete disinfection can be effected. Partial and nominal disinfection, besides being wasteful, may be mischievous as giving rise to a false security."

So important is the isolation hospital becoming in the eyes of English sanitary authorities, in view of its effectiveness in preventing epidemics, that Dr. Buchanan has, in his report for 1888, further issued a memorandum in which diagrams and plans are set forth. In view of the frequent references which have been made by your Committee on Epidemics during the past year to this matter, I have taken advantage of Dr. Buchanan's memorandum to abstract a few remarks from it, and to give diagrams of plans of hospitals constructed for the special purpose of isolation.

Says Dr. Buchanan, "English communities nowadays recognize the advantage of isolation hospitals as a means of preventing the spread of infectious diseases from persons who cannot be properly isolated in their own homes. It cannot be too clearly understood that an isolation hospital, to fulfil its proper purpose of sanitary defence, ought to be in readiness beforehand. . . . Thus hospitals provided during an epidemic are mainly of advantage to particular patients; they have little effect in staying the further spread of infection."

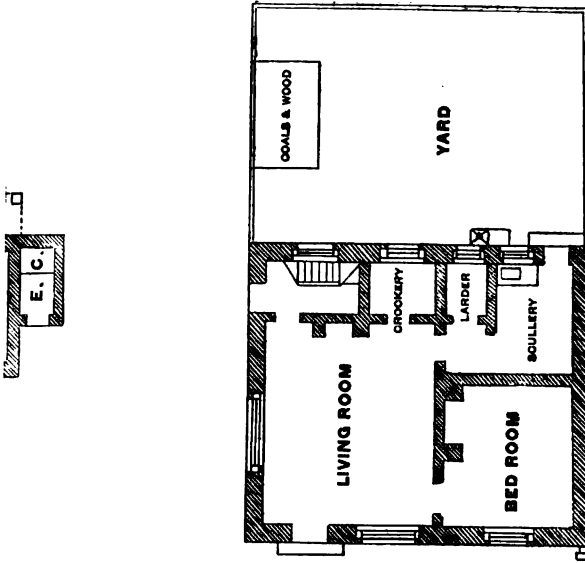
This memorandum also suggests to sanitary authorities of rural districts and of small towns the means by which they may most advantageously make such provision. "The permanent provision to be made in a town should consist of not less than four rooms in two separate pairs; each pair to receive the sufferers from an infectious disease, men and women of course separately. See page 200.

"Plans illustrating the sanitary requirements of small hospitals for infectious disease, are arranged on three sheets accompanying the present memorandum. Plan A, on the first sheet, is that of a little building to hold two patients of each sex. On the second sheet a plan and a section (B) of a rather larger hospital building are shown, providing for six patients, with separation of sex, and also of one infectious disease from another. The third sheet shows (plan C) a small pavilion adapted to receive six male and six female patients suffering under one kind of infectious disease. On the same sheet is placed a plan (D) of a ward block for ten patients, of similar design to plan B, and a convenient disposition of buildings upon site is also indicated. It will be found that in all the plans proper standards of space are observed, viz., not less than 2,000 cubic feet of air space, than 144 square feet of floor space, and twelve linear feet of wall space to each bed; that means are provided for the adequate ventilation and warming of wards, and for securing them from closet emanations and the like. In plan A, earth closets, in other plans, water closets, are indicated as the means of excrement disposal. The latter are to be regarded as preferable where efficient sewers are available. Places for washing and disinfection, and for a mortuary are indicated. It will be observed that an interval of forty feet is everywhere interposed between every building used for the reception of infected persons or things and the boundary of the hospital site. This boundary should have a close fence of sufficient height, and the forty feet of interval should not afterwards be encroached on by any temporary building or other extension of the hospital. In the construction and arrangement of such temporary buildings as may at times be wanted in extension of the permanent hospital, the same principles should be held in view.

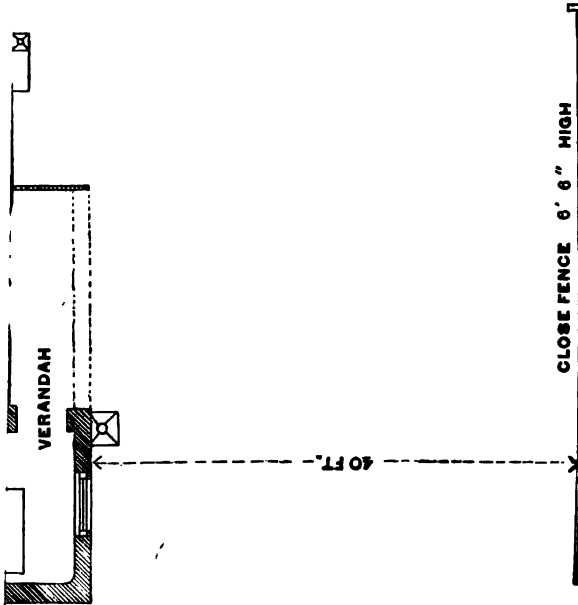
In determining the locality where an infectious hospital should be placed, the wholesomeness of the site, the character of the approaches, together with the facilities for water supply and for slop and refuse removal, are matters of primary importance."

Herewith I also give a diagram of a hospital constructed within the present year in the town of St. Thomas, in view of the threatened appearance there of smallpox.

PLAN A.



Scale, 16 feet to an inch.

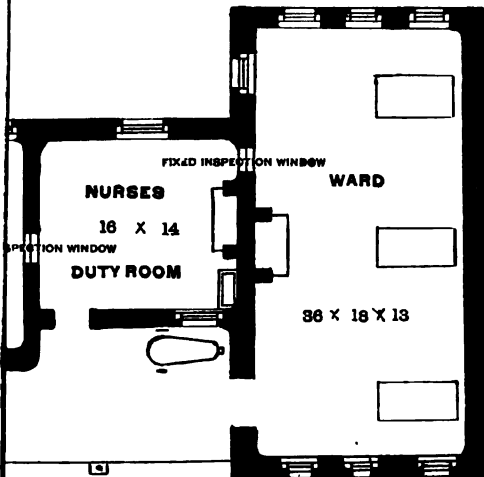
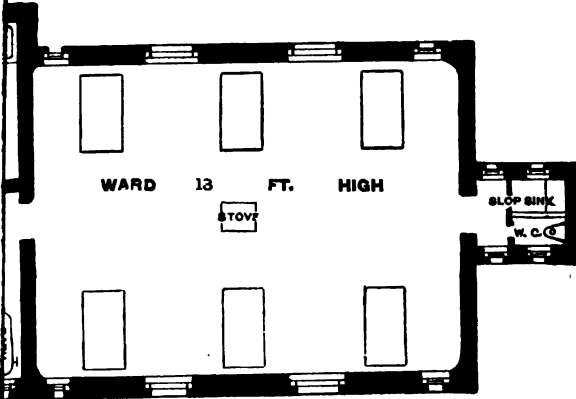


PLAN.

Local Government Board,
Whitehall, S.W.
February, 1888.

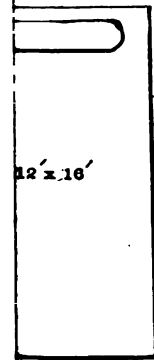
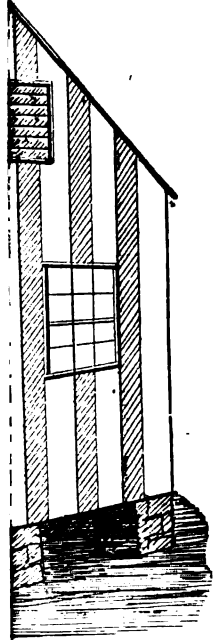
PLAN C.

ON FOR 12 BEDS.



5' HIGH

PLAN D.



12' x 16'

2

PITAL.

Size of building 16x73 feet; height of ceiling 11 feet; ventilator in gable ends, and regular ventilators in every room in ceiling; kitchen painted, and other rooms and hall twice oiled—all close-sheeted inside and hand smoothed. Fig. 1 is cooking stove. Fig. 2 is a Baker furnace—combination of hot water and steam. Fig. 3 is a cupboard. Fig. 4 is the heating pipe, alongside of wall the length of building. The cost of building, including stove and heater, would be \$905.

Regarding the purposes of such hospitals it may not be improper to refer to their rise, in times past, as fever hospitals, and that with years their use has extended to other forms of infectious disease. So important has become their use that through them largely the fever, typhus, for which they were primarily constructed, has almost disappeared from England. It has not been unnatural that since then their use has been given largely to typhoid, a disease, however, which under ordinary conditions in Ontario can, as far as the public are concerned, be treated readily in private houses. There are, however, instances, as when strangers and others are stricken with disease in houses where the sanitary conditions or the surroundings are bad, in which such are of the greatest value, not alone to the sick, but to the public. We have not infrequently found that neglect on the part of the physician to give directions, or oftener on the part of the nurse to perform, to disinfect the room, the bed and body linen, and the passages from the bowels have become the direct source of infection to other members of the house. Suffice it to say that this scheduled disease being directly under the supervision of the Medical Health Officer, there can be no reason why such authorities should not frequently avail themselves of the presence of an isolation hospital.

Not a few of our larger towns and cities have been moving in the direction of having hospitals built, which, if not specially designed for infectious diseases, are at least constructed with one or more wards so cut off as to make them of service in the treatment of infectious diseases.

Of these we may mention the following:

GUELPH, May 21st.

DEAR DOCTOR,—In the General Hospital there are two wards for the reception of contagious diseases. They are completely isolated from the rest of the building. There is also a small building some distance away which is used for the same purpose—or in cases of smallpox. At St. Joseph's Hospital they have a small building for contagious disease not connected with the main building. As a rule patients suffering from diphtheria, when proper rooms are not to be had at their homes, are sent to the hospitals. In cases of diphtheria they usually remain for about three weeks after recovery.

Yours sincerely,

THOS. H. KEATING,
Medical Health Officer.

OFFICE OF THE MEDICAL HEALTH OFFICER,
LONDON, ONT., May 17th, 1889.

DEAR DOCTOR,—I am in receipt of yours of 9th inst. 1st. There are no cottages for the reception of contagious diseases in connection with our city hospital. They are admitted reluctantly into one of the wards.

2nd. No rules of management exist between the local board of health and the hospital trustees with regard to admissions or the number of days from the onset of disease until dismissed from hospital; that is left to the discretion of attending physicians. I hope our hospital trustees will before long see the necessity of building isolated cottages or wards for the reception of infectious diseases, and not subject the inmates of the hospital to needless danger.

Yours truly,

T. V. HUTCHINSON.

P. H. BYCE, M.A., M.D.,
Toronto.

CITY HOSPITAL,
HAMILTON, May 17th, 1889.

DEAR DOCTOR,—Our scarlet fever cases remain at least six weeks; measles, two, and diphtheria from three to twelve. They are in a building by themselves.

Smallpox is in a separate building, a mile from the infectious building of the city hospital.

Diphtheria patients are taken to the general ward after four weeks if they can safely be moved.

The nurses on duty in the infectious building have no duties elsewhere.

Yours very truly,

F. BEEMER

DR. RYALL,
City Health Officer.

MEDICAL HEALTH OFFICE,
LOCAL BOARD OF HEALTH,
HAMILTON, ONT., 13th May, 1889.

DEAR DOCTOR,—I enclose communication from the resident physician of our city hospital. Of course, you knew that the smallpox hospital is distinct and far away from the general hospital.

With regard to the time which should elapse after contagious diseases before patients should be allowed to mingle with the public you should settle that period for general adoption, and expert testimony would be most reliable to act on.

Scarlatina, of course, is not free from contagion until desquamation of the cuticle is complete—is there a particular time for that process to be accomplished? Many of the cases of so-called scarlatina have had no desquamation, and some of them no sore throat.

Croup gives a loop-hole for the non-reporting of diphtheria—when you find death from croup followed by a case of diphtheria in the same house, it looks exceedingly suspicious. Inflammatory croup is generally supposed to be a non-specific affection—but errors in diagnosis are not impossible. The chairman of the Board of Health desires me to inform you that the Board had a person up before the magistrate for breach of the health by-law, but that the magistrate did not support the health officer. The case was for the emptying of a privy vault not being done according to orders of the Board. The magistrate on former occasions has fined parties as high as \$10 for the same act.

Yours, etc.,

J. RYALL,
M. H. O.

DR. BRYCE,
Toronto.

MEDICAL HEALTH OFFICE,
LOCAL BOARD OF HEALTH,
HAMILTON, ONT., 13th May, 1889.

DEAR DOCTOR,—There is only one ward for contagious diseases in our hospital grounds. I have never been inside of it—all cases sent to the hospital are no longer under the control of the Board of Health. The resident medical officer discharges such patients when he thinks fit to do so; this has been the rule carried out as far as I know. I will inquire further from the resident surgeon, Dr. Beemer.

Yours, etc.,

J. RYALL.

I could not very well, from my own experience, give any stated time with regard to how long isolation should be maintained in the diseases mentioned. I think that some authorities go as far as seven weeks. The disease may subside in a very short time and the patient convalesce. During the latter period is there not danger? Some patients get rapidly well, others do not.

J. R.

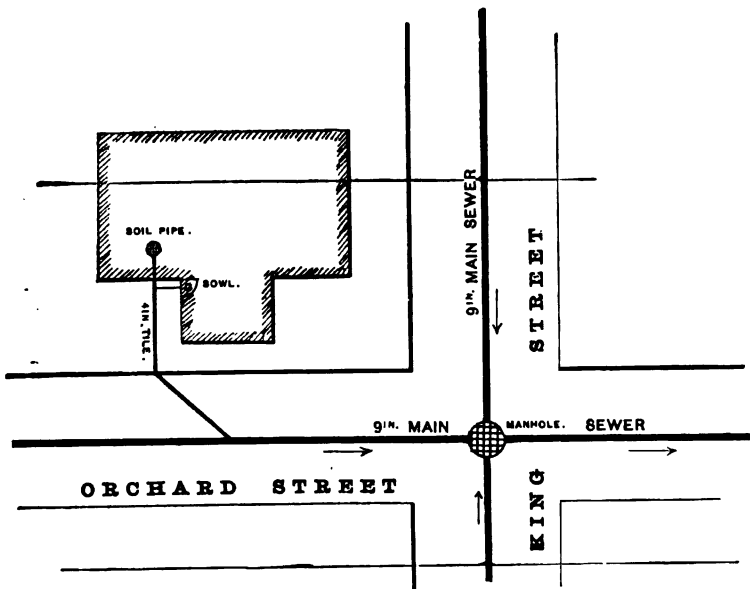
HEALTH OFFICE, CITY HALL,
OTTAWA, May 10th, 1889.

P. H. BRYCE, M.D.

DEAR DOCTOR,—In answer to your note of 9th inst., I beg to say that there are in this city two hospitals specially maintained for the reception and care of contagious diseases. One is annexed to the Protestant General Hospital, the other to the Roman Catholic General Hospital. They each receive from the Corporation the sum of eight hundred dollars annually, as a grant. They are under my special supervision, and with very few exceptions I attend to all cases there isolated. No case is discharged unless

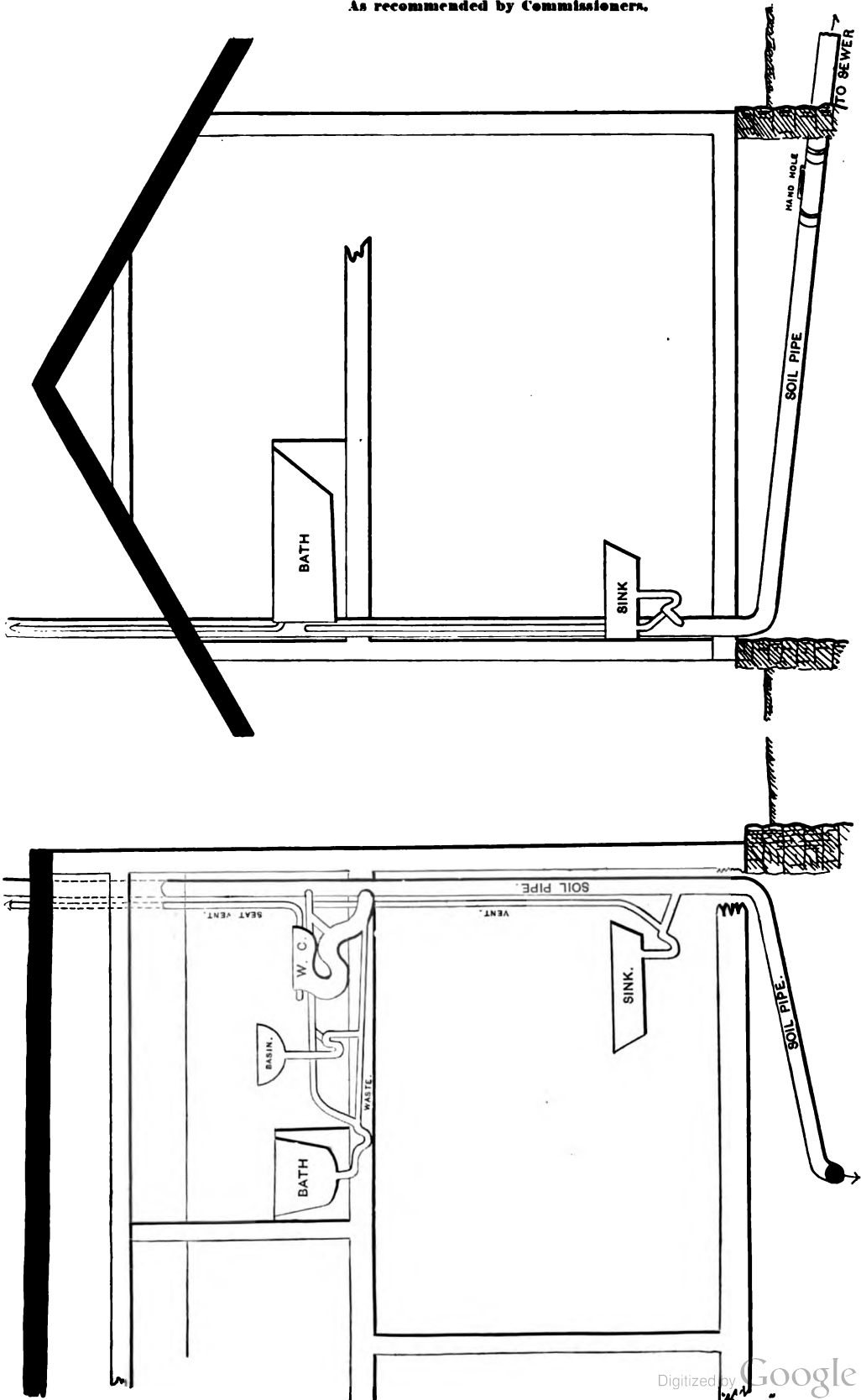
PLAN SUBMITTED ON APPLICATION

Under Form IV.



PLAN OF BROCKVILLE PLUMBING

As recommended by Commissioners.



with the consent and approval of the medical attendant. From the onset of the disease isolation would be enforced from three to six weeks, differing as you are aware, in different contagious diseases and also in different degrees of severity of the same diseases in different cases, the average duration of isolation being about twenty-five days.

Yours truly,

A. ROBILLARD,
M. H. O.

ST. THOMAS, ONT., May 10th, 1889.

DEAR DOCTOR,—Yours of the 9th instant received this morning. Regarding the information required I can only say we have no hospital in the city, with the exception of the one erected for the smallpox patients, and it has not been used up to the present time.

All patients with contagious diseases have been treated at their own homes. No provisions have been made by the board for their removal to any other place. We have had very little sickness during the present year from contagious diseases. I am sorry I cannot give you any other information.

Yours faithfully

J. B. TWEEDALE.

At Brockville, where a fine new city hospital has been completed, a specially isolated ward has been arranged for. It is approached from an outside entrance, and special endeavour made to secure complete isolation. The local board have no special arrangements for sending persons from houses when they cannot be isolated; but they can be sent with consent of the trustees in the usual way of admittance. Close relations between the two may soon be expected to be established.

As most of these hospitals belong to the municipality there ought to be little difficulty in the Local Boards arranging with the hospital trustees so that those cases which the Medical Health Officer deems necessary should be received and treated. One difficulty has, however, been found in some of these instances where patients in stages of recovery have been discharged or allowed to leave the hospital before their infectiousness has ceased. It is due to the same difficulty already referred to, viz., the lack of any thing like a recognized specified time at which the contagion has ceased to be present, either on the skin or in the respiratory passages. It will be a matter for the Board to consider whether some regulation on this subject should not be passed and brought before the notice of the Local Boards. Its need is manifest, and we doubt not but that physicians generally would be glad of some regulation which would save them from the disagreeable necessity of having to apparently exercise the harsh duty of causing cases to be isolated when the acute symptoms have largely allowed the patient to dispense with their services.

The matter of notifying the Provincial Board of outbreaks of contagious disease is but part of the plan outlined in the Public Health Act, by which all executive officers can lend their aid in stopping the spread of these diseases. Manifestly while the Local Health officers may prove equal to the task of isolating disease within its own municipality there are frequently instances where persons have passed beyond their jurisdiction, who having been exposed may endanger the health of other communities. For such reasons it is most desirable that the Provincial Board should have early notice of outbreaks of disease of whatever kind, that they may where necessary lend aid to poor municipalities or make suggestions tending to more effective action in others.

But the compulsory necessity for the Provincial Board being kept informed of outbreaks lies in the duties laid upon it, under sec. 9 Public Health Act, of investigating outbreaks and of enquiring into the measures taken by Local Boards for suppressing such. That such notification was necessary under the Act was plain, but inasmuch as exact expression on the subject was wanting, the attached regulation was passed by Order in Council based upon the following resolution of the Board.

August 17th, 1888.

"Moved by Dr. J. A. Macdonald, seconded by Dr. H. P. Yeomans and carried, That while the principle of notification by physicians and householders to Local Boards of cases of infectious diseases is fully recognised in the Public Health Act by statutory enactments; yet, inasmuch as the question has been raised by several Local Boards, as to the interpretation of section 9 Public Health Act, cap. 205 R. S. O., 1887, by which the Provincial Board is to be informed of outbreaks of zymotic diseases such as cholera,

smallpox, diphtheria and scarlatina, the Board in order that it may comply with the agreement entered into by the International Conference of State and Provincial Boards regarding interstate notification of infectious diseases and further in order that it may carry out the duties laid upon it by said section 9, would request the Minister of the Department to bring the following recommendation adopted by the Provincial Board of Health before the Lieutenant-Governor for his sanction :

That every Local Board and its Medical Health officer shall be required to at once notify the Provincial Board of Health of all and any cases of cholera and smallpox, and of such outbreaks of diphtheria and scarlet fever as occur within the limits of the jurisdiction of said Local Board."

COPY OF AN ORDER IN COUNCIL APPROVED BY HIS HONOR THE LIEUTENANT-GOVERNOR, THE 29TH DAY OF SEPTEMBER A. D., 1888.

Upon consideration of the resolution of the Provincial Board of Health passed on the 17th day of August last and upon the recommendation of the Honorable the Treasurer the Committee of Council advise that the following regulation be approved of by your Honor :

"That every Local Board and its Medical Health officer shall at once notify the Provincial Board of Health of all and any cases of cholera and smallpox and such other outbreaks of diphtheria and scarlet fever as occur within the limits of the jurisdiction of said Local Board."

Certified,

(Signed) E. F. B. JOHNSTON,
Clerk Executive Council,
Ontario.

That such notification becomes necessary in the interests of the municipality is often made frequently apparent. Within the last few weeks a telegram was received from the Secretary of the Provincial Board of Quebec enquiring whether small-pox existed in Winchester township, Dundas county, as it was reported that a girl had come to Montreal from a house where smallpox had recently been. Knowing of no smallpox there since April 1888, I was surprised at the report, but telegraphed for information ; answer was at once returned to the effect that the disease had existed in one family, but that all had recovered and that the disease had been confined to the first house. The facts were at once telegraphed to Montreal with the request that the suspect be quarantined if they thought proper.

The possession of this information has besides a wider bearing inasmuch as it enables the Provincial Board to maintain a close relationship with neighboring State and Provincial Boards. The utility of such is seen in the incident just related as also in the two illustrations which follow :

[INTER-STATE NOTIFICATION ISSUED IN COMPLIANCE WITH RESOLUTIONS ADOPTED BY THE CONFERENCE OF STATE AND PROVINCIAL BOARDS OF HEALTH AT TORONTO, OCTOBER 6TH, 1886.]

To Dr. P. H. Bryce, Toronto, Canada :

Boston, May 22nd, 1889.

SIR,—In compliance with the resolutions printed on the back of this notification it becomes my duty to inform you that a case of smallpox exists at Janeston in this State, in the person of a Belgian woman, immigrant. She arrived at New York, May 8th, on the steamer Nesterland from Antwerp. Took the disease from another case on board.

Respectfully, your obedient servant.

SAML. W. ABBOTT,
Secretary.

INTER-STATE NOTIFICATION OF DANGEROUS COMMUNICABLE DISEASES.

MICHIGAN STATE BOARD OF HEALTH
(Office of the Secretary),
LANSING, Michigan, May 28th, 1889.

To the Secretary of State Board of Health :

DEAR SIR,—In compliance with the resolutions adopted by the National Conference of State and Provincial Boards of Health at Toronto, 1886, and Washington, 1887, it becomes my duty to inform you that two cases of smallpox exist in Michigan, one at Detroit and one at Battle Creek. The person sick at

Detroit is Don Lewis, a resident, origin of disease unknown. The Battle Creek case is in a Polish family recently come from Detroit or Canada.

The measures taken to restrict are the removal of the Detroit case to the city hospital; and the immediate isolation of the family in which the Battle Creek case occurred. The danger of the disease spreading is not great.

Very respectfully,

HENRY B. BAKER,
Secretary.

This notification further gives the opportunity to correct erroneous impressions which may exist, regarding the health of the Province, in places with which we have commercial relations.

Thus the following correction of the Michigan notification was necessary.

[A SIGNATORY TO THE RESOLUTIONS ADOPTED BY THE INTERNATIONAL CONFERENCE OF BOARDS OF HEALTH AT TORONTO, OCTOBER 6TH, 1886.]

TORONTO, May 29th, 1889.

To the Secretary of State Board of Health:

DEAR SIR,—In compliance with the resolutions printed herewith, it becomes my duty to inform you that the last case of smallpox existed at Fingal (Southwold township), in the county of Elgin, Province of Ontario, in the person of Wilson Burrell, resident.

The origin of the disease was from exposure to previous case. This statement is made to correct the impression which might be created by the Michigan notification of May 28th, that a case of smallpox in Battle Creek, in the person of a Pole, had recently come from Detroit or Canada. No Poles live near the Fingal District.

You are authorized and requested by this Board to take such further measures for the protection of your territory, in conformity with the terms of the resolutions, as in your judgment may be deemed necessary.

I have the honor to be,
Your obedient servant,

P. H. BRYCE.
Secretary.

The constant commercial and social intercourse between adjacent Provinces and States through our railways makes the necessity for this work daily more apparent, as the methods of dissemination of these diseases become more evident and the means necessary to counteract the dangers better known.

III. ABATEMENT OF NUISANCES.

Perhaps it might be said that the less frequent complaints regarding the prevalence of typhoid and the existence of local nuisances, are due rather to a growing indifference to their existence than to any lessened frequency in their occurrence. There can be little doubt, however, but that this class of disease and of those nuisances which often are its close attendant, are becoming less common as physicians are becoming more advanced in prophylactic hygiene and antiseptic treatment of disease, while Local Boards are better acquainted, both with their powers under the Health Act and of the methods by which such nuisances can be lessened.

During the past dry and warm summer it was to be expected that nuisances, due to the lowering of the water in mill-dams and creeks running through towns, would be abundant. Such did exist to some extent, and amongst cases reported were

1. The Parkhill case, in which a creek was dammed up for mill purposes, and stagnant pools caused thereby were complained against. The Local Board took reasonable action under the circumstances.

2. The Wingham case is herewith printed in full, as illustrating some of the difficulties which Local Boards have in dealing with nuisances.

TOWN CLERK'S OFFICE,
WINGHAM, ONT., August 30th, 1888.

DEAR SIR,—I beg leave to again write you in reference to the mill pond nuisance in the river Maitland, forming the boundary line between the township of Turnbury and the town of Wingham. Full particulars of this matter you will find in my letters to you dated April 15th and 29th, 1887.

We found by amended Municipal Act, 1888, the county council was liable for all fallen timber and driftwood in streams forming the boundary between municipalities. We accordingly notified the county council of the county of Huron to remove the timber and driftwood in this mill-pond. A committee of the council came up and examined the place, but they claim that they are only liable for the debris in the main stream or original river bed, and not for the rubbish carried beyond that on account of the mill-dam across the stream raising the water and forming a pond.

To clear away the timber and driftwood in the main stream or original bed will not improve the condition of the nuisance any, as there is scarcely any timber in the main stream, nearly all of it being on either side of it.

The mill was destroyed by fire a few weeks ago, and is not likely to be rebuilt; the water has been let off and consequently the whole jam with all its accumulation of rotten wood and filth is in a better position than ever to spread disease among those living near it. At the C. P. R. station yesterday, with the wind blowing off the pond, the smell was almost unbearable. The county council will not agree to remove the nuisance, and we fear they are not liable. The owners of the mill privilege, on which most of it is situated, will not agree to do so; in fact since the destruction of their mill the property is not worth the expense. According to the Health Act the Local Board cannot undertake an expenditure so large as the clearing out of this pond would necessarily be. The municipal council of Wingham will not do anything in the matter, for the reason, no doubt, that only a section of the town is directly affected by the nuisance, and consequently the greater number of the electors would object to the expenditure.

Can you let us know who are the responsible parties, and how to proceed in the matter; if you will do so you will greatly oblige us.

I may say, this year, so far, we have no notice of any disease occurring directly from this pond, but last year there were three cases of typhoid fever near the place, and the pond is in a worse condition now than ever it was.

Yours very truly,

J. B. FERGUSON,
Sec. Board of Health,
Wingham.

3. The Thorndale case of another character shows how neighborly convenience is disregarded. The owner of a cheese factory pours his waste whey and refuse generally into the creek, from which the cattle in the farm below go to drink. The water becomes so polluted as to be refused by the cattle of the lower farm. An impotent Local Board refused to aid the injured to have his complaint rectified, which might readily be done under Section 4 of Schedule A of Health Act.

4. In the following letter from Glencoe is set forth a condition of affairs fortunately not common to many parts of the country, and yet by no means very rare.

GLENCOE, February 27th, 1888.

Dr. P. H. BRYCE,
Toronto.

SIR,—I have read with much pleasure and profit Dr. Griffin's paper on water pollution, as published in the *Globe*, February 16. The water supply in this western peninsula is very indifferent, many having no regard to the laws of health in these counties. In dry times milk cows and other stock are forced to drink out of holes scraped out in the pasture lot. It is common to see cows giving milk standing up to their bellies in mud and their droppings, drinking that filthy

stuff. I was appointed at our cheese factory to examine and test the milk as to purity. I said if they would allow us to examine the water I would cheerfully act. The reply was, "If you do away with ponds we will not send milk to the factory."

The township Boards of Health are generally the members of the council, many of them grave offenders. I know an ex-reeve who has a hole scraped in his barnyard. All the water from the roofs and surroundings soak through the dung and straw into the pond, and the milk cows and stock forced to drink out of that nasty hole, his stock coming out mere bones in the spring.

If you could get an act passed to stop such a system as I describe, and compel councils to appoint an officer specially to carry out the provisions of the law, it would, I believe, save many from sickness and, possibly, early death. Your Board has a great work before it. The extensive drainage of this western country has reduced the water supply, and we will have to get our supply from a considerable depth.

I would suggest that all scraped holes that have no outlets running clear be fenced, and, if possible, covered from the sun.

I remain yours,

THOMAS BECKTON.

The Acts printed in last year's report on the subject of milk supplied to factories will with the Health Act have to be the means, along with education, whereby these nuisances may be remedied.

5. The London sewerage difficulty, referred to in reports for the past three years, had not at last reports been overcome. In February of last year this Board was communicated with regarding a new proposition for obviating the nuisance, which was in substance that of pouring into the main sewer near its outlet, some "properly prepared chemical solution" to be mixed in a tank along the sewage by "agitators," this thereafter to be poured into the river, having been neutralized. These proposals of the Board were based upon some experiments by Prof. Bowman. It is hardly necessary to say that, apart from the fact that the results of the detailed experiments vary greatly from those of other experimenters, experience elsewhere has shown that this method would not do away with the nuisance complained of in any satisfactory manner.

6. The pollution of the Bay of Quinte just above Belleville by the sewage of the Deaf and Dumb Institute, is another matter which has been repeatedly brought before the Board by the Local Board of Belleville. The matter has been brought before the department which has that institution under its control, but no solution of the matter has yet been attempted. As the pollution of the bay takes place at a point half a mile west of the point of intake of the Belleville water supply, there can be no question as to the duty of the Government under the circumstances. The question of an injunction being served by the city upon the Superintendent of the Institute ought to be fairly considered by the authorities, since there is no reason why so simple a matter as the safe disposal of the sewage of 200 or 300 persons should not at once be carried out.

7. The Aylmer case still stands, and will, we suppose, until coming warm weather raises the question again. A dam at the upper end of the stream running through the town has been erected, with the result that malarial troubles are more or less common. The low stream in the village is insufficient to carry downward polluting matter, while suspicions have been raised against the character of the town water. Action proposed by the Local Board last year was not carried into effect.

8. Open ditches have been, in a number of instances in smaller towns, a source of serious complaint. One such complaint was preferred by parties in Tilbury Centre, in Kent County, that the Local Board refused to take action after complaint had been made. The matter was so clearly one with which the local authorities could deal that no inspection was made by this Board.

9. A complaint similar to that from Tilbury Centre was received from Morrisburg. The complaint states "the town of Morrisburg has water-works, the cart before the horse, and no sewerage," and the question is asked, "Will not the earth become

saturated with the refuse water and sewage, and cannot we, as a Health Board, compel the corporation to dig a drain or drains along the streets and let the water out of cellars of private residents. The council maintained that they were not bound to dig sewers along their streets or even to let householders drain into them." Manifestly the difficulty is one belonging to an early stage of civic evolution, and will be solved only through a general growth of knowledge and appreciation of the simple and easy method of dealing with house sewage.

10. From Tottenham a complaint of the same nature as that at Tilbury Centre was made, and a line of action suggested to that Board. The great difficulty is to get action taken.

Associated with the class of nuisances of which the above is a sample, are those relating to privies and disposition of night soil. Of these, complaints came from Grand Valley re disposal of night soil; another from Maxville, Glengarry, a privy nuisance due to a large hotel; and another from Omeme from the presence, on adjacent premises, of an old and decaying log stable with water and a large amount of animal matter, to the presence of which, it was claimed, several cases of fever and one death were due.

All these difficulties might readily be avoided by adopting the simple and economical plan of dry earth closets, carried out in the village of Leamington; and until Local Boards have made their general adoption compulsory, we need not expect to be free from complaints of the several kinds indicated in this last paragraph.

Associated with the same are those cases of typhoid fever reported, where evidently the *materies morbi* has been in well water. Of this class an unfortunate example occurred at the small village of Cooksville.

In early autumn the well at one house became perfectly dry, and water from the well on a neighboring premises was used, this well being situated just outside the back kitchen door. It pumped empty with very slight use. On this premises, some fifty yards away, was a slaughter-house, the effluvia from which contaminated the surrounding air in the evenings and during the night. Cases of typhoid occurred in house No. 1; thereafter in the house on premises where slaughter-house was; thereafter in the hotel near by, and in the houses of several other persons who had sat with the sick. While it is quite probable that some may have contracted the disease while nursing the sick, it is almost certain that the major part drank water from the suspicious well. A biological examination of the water showed it to be extremely impure from the numbers of bacteria contained in it; and that fatal cases occurred in those houses where the emanations from the slaughter-house contaminated the night air, is wholly in keeping with a number of other instances where cases of disease in the vicinity of such air pollution have been of an extremely virulent and fatal character.

10. From Peterboro' an outbreak was reported by Dr. Caldwell, occurring in a village a few miles away. The doctor reported ten cases in four families of his own practice, and rumoured cases in others; and the Local Board were extremely anxious that the water should be tested in wells which were suspected. It is extremely unfortunate that this Board possesses no facilities for making such investigations, thereby strengthening the hands of Local Boards in their endeavors to do efficient work.

11. Another case occurred at Port Dover, which illustrates the difficulty Local Boards at times have in carrying on their work. A nuisance was caused by a man, part owner of a well on the line between two lots. He had thrown out a heap of rubbish from a cellar-way, and caused thereby surface water to flow into the well, as tests showed, causing its pollution. He refused to comply with the Board's order for removal of earth until after a summons—the time for removal having been previously enlarged. Two days before the trial he caused the removal of the earth, but left the polluted well untouched. The case, brought before two magistrates, was dismissed with costs. Similar cases elsewhere might be given illustrating the action of justices who, to say the least, certainly have not aided in making the work of our Local Boards more easy or satisfactory. In this case the matter was referred to the Attorney-General's department for advice, but owing to the time the Local Board had allowed to elapse, appeal from the magistrates' decision was impossible.

The following letter from a Medical Health Officer illustrates first, the existence in country places of typhoid, which in almost every outbreak might be traced to wells, and further, the desire of Local Boards, even in rural localities, have to do the duties placed on them.

—, September 10th, 1888.

DEAR DOCTOR,—Kindly let me know how you would go about making an inspection as to the cause of typhoid fever cases in different parts of our township. We have a number of cases, some in one part and some in another, and a committee has been appointed to find out the cause. Kindly let me know your method of procedure, and also your tests for water without sending it to a regular analyst.

Yours truly,

_____,
Medical Health Officer.

IV.—INSPECTION AND REGULATION OF PUBLIC MILK SUPPLIES.

No department of sanitary work has, during the past year, shown more positive signs of progress than this one, of the first importance to every-day health. If we were to sum up the three dangers to life, which are constantly liable to be present, we would say, (a) unwholesome food, and food which is the bearer of the microbes of specific disease; (b) unwholesome air, and air which is the carrier of disease germs from sewers, foul cellars, workshops, schoolrooms, etc.; (c) impure clothing and utensils of whatever kind, which have been exposed to infection by personal wearing and handling, or exposure to contaminated atmospheres. But of all these we think milk the one most liable to be injurious. The sole food of infants, it is likewise depended upon as a nourishing diet for the sick and invalids, and yet being an animal food its liability to injurious influences begins with the health of the cow, the nature of the food and the manner of giving it, the cleanliness of the cow and of utensils from the moment of milking till it is consumed. For several years up to last year this Board of Health has, as will appear by perusal of past reports, urged the necessity for inspection of the sources and modes of handling milk supplies upon the attention of Local Boards, and toward the end of 1887 issued the following circular:

OFFICE OF THE PROVINCIAL BOARD OF HEALTH,
TORONTO, November 28th, 1887.

To the Chairman and Members of Local Boards of Health:

GENTLEMEN,—As you are doubtless aware clause 5 of the Public Health Act of 1887 provides that: "The Medical Health Officer under the direction of the Local Board of Health shall have authority to make or cause to be made by a veterinary surgeon, or such other competent person as the circumstances may require, a periodic inspection of all dairies, cheese-factories and creameries, dairy farms and slaughter-houses, which come within his or their jurisdiction;" and clause 6 of the same Act further places upon this Board the duty of enquiring into the various measures which are adopted by Local Boards throughout the Province in the interests of the public health.

In view therefore of the importance of the provisions contained in clause 5 of the Act already quoted, and of section 10 of Schedule A of the Act of 1884, and owing to information received from time to time to the effect that no systematic inspection of public milk supplies exists in many municipalities in the Province, the Provincial Board recognizing the, now well-ascertained, dangers of the transmission of typhoid fever, diphtheria and other infectious diseases by means of impure milk, has instructed its committee on Foods and Adulterations to prepare for distribution to Local Boards certain recommendations, which it is hoped will form a basis for such regulations as the Local Boards of the several municipalities will deem proper to adopt. The fact that there are many rural municipalities, where there is no so-called public milk supply, will not, it is hoped, prevent their Local Boards from insisting, in the public interest, that the precautions which are deemed necessary for larger places, be carried out by those farmers residing in their districts who may be shippers of milk to cheese-factories, creameries

or to the large centres. In order that such inspections may be effective and systematic we have arranged in order the following Regulations :—

Reg. 1.—All dairymen and vendors of milk shall, at least once a year, register with the Medical Health Officer, or Secretary of the Local Board, where no such Medical Officer exists, of the municipality (in a register supplied by the Board for such purpose), (1) their names and addresses, (2) the source or sources of their milk supplies, (3) the number of cows in their possession, (4) the average quantity of milk disposed of either (a) to milk-shops, (b) milk vendors, (c) or to private consumers.

Reg. 2.—That at such registration, a statement be made by all keepers of cows for public supplies as to the kinds of foods supplied to their cows ; if (a) of brewers' grains, (b) distillery slops, (c) starch factory by-products, (d) ensilage or (e) oil-cake ; the amounts in proportion to the total food supplied.

Reg. 3.—That periodic inspections be carried out under direction of the Board by its Medical Health Officer or Sanitary Inspector, in accordance with the spirit and provisions of section 5, Health Act, 1887, and section 10, Schedule A, Health Act, 1884.

Reg. 4.—That the dairyman or milk-vendor agrees, as a condition of receiving license, to comply with the various clauses of the Health Acts, by giving notice to the Local Board of any cases of contagious animal diseases (defined in said clause of Public Health, 1887), occurring amongst his cattle, or of any scheduled contagious diseases in his family, or in the farm, house or shop at which, from which, or in which the milk is either sent or received, and that he further shall carry out the restrictions laid upon him by the Local Board under any Public Health Act.

Reg. 5.—The milk-vendor agrees to provide milk of a standard quality, the test values of each grade of milk to be as follows :—

| Grades. | Solids. | Fat. |
|--|-----------------|----------------|
| No. 1 Quality..... | 14.00 per cent. | 4.75 per cent. |
| No. 2 " | 13.00 " | 4.00 " |
| No. 3 " (Government minimum average) | 12.00 " | 3.50 " |

Reg. 6.—That the Local Board through its Medical Health Officer shall grant a yearly license to each dairyman, milk-vendor and milk-shop, after compliance of said person with the provisions of said regulations ; provided that at any time such license may be recalled on sufficient proof being had by said Board or its Officer of violation of the terms of the Regulations, or of any clause of the Public Health Acts.

The following form for Register is suggested :

FOR REGISTRY BOOK.

| Name. | Address. | Locality or Source of Supply. | No. of Cows. | Quantity of Milk Supplied. | | Food Supply. | I hereby agree to report at once any infectious diseases that may occur in my family, or in my house or shop, and whatever disease may occur amongst my cattle to the Medical Health Officer of this municipality. |
|-------|----------|-------------------------------|--------------|----------------------------|--------------------|--------------|--|
| | | | | To Dairies | To private people. | | |
| | | | | | | | Date, |
| | | | | | | | Signature, |

The following is similarly suggested for form of License :

Mr. _____ of _____ (Dairyman, Milk-vendor or Shop-keeper,) having agreed to conform with the terms of the Regulations printed herewith (on reverse side) is hereby authorized to engage in the business of dairyman, milk-vendor or shop-keeper for the period, included between _____ and _____, always providing that should any violation of any provision of the Health Acts or Regulations be proven, as of the agreement to supply milk of a standard quality, neglect to keep premises in first-class condition as regards cleanliness, water used, etc., as required by said Local Board or its Officer, or as regards infectious diseases, said license may at any time be cancelled.

Issued this _____ day of _____

.....
(Signed for Local Board.)

It is hoped that the suggested Regulations may be instituted everywhere throughout the Province at the beginning of 1888 ; in order that this, of all sources of food the most important, may be supplied of the best possible quality, to the mutual advantage both of seller and consumer.

We have the honour to be,
Your obedient servants,

FRANCIS RAE, M.D., Chairman,
C. W. COVERNTON, M.D.,
P. H. BRYCE, M.A., M.B., Secretary,
Members of the Committee on Epidemics.

Perusal of the Reports of the Local Boards found in Appendices will indicate fairly well the general attention which has been paid to milk inspection ; while further replies from the following places have been made to a card asking for specific regulations on the subject.

CITIES.

Toronto.—According to the Annual Report for 1888 it is stated : “ That the Medical Health Officer drew up a Report (dated March 15th, 1888,) setting forth the necessity of having the dairies, creameries, etc., thoroughly inspected, but owing to the large amount of important business before the Board the matter was left over for future consideration.”

Ottawa.—Without any special by-law on the subject having been passed other than that contained in Schedule A, section 10, which is sufficient for the purpose, the Board issued a license after the form proposed in the circular. Inspection of dairies is made by the Sanitary Inspector or Medical Health Officer of the Board. Results have been very satisfactory as regards improvement in quality of milk supplies, etc

Hamilton.—A special by-law was there passed and the work undertaken in a systematic manner. In order that the Board might be placed in the strongest possible position in any action which it might find necessary to take, it sent its Medical Health Officer on a tour of inspection of methods of testing milk supplies to New York, Boston, etc., and having returned he arranged for the work of regular inspection. Particulars will be found in the Annual Report of the Board printed herewith.

London.—No special by-law other than Schedule A, sec. 10, has been passed, with a resolution of the Board requiring the issue of a special license. The Annual Report shows that under the supervision of the Medical Health Officer most thorough and efficient inspection and testing have been carried on, resulting in a notable improvement of the quality of the milk supplies.

Brantford.—Amongst those who undertook the work most promptly was the Brantford Local Board, and proceeding under Schedule A, sec. 10, issued a license given upon condition, signed as an undertaking by the receiver thereof, that he would comply with regulations similar to those contained in the form suggested in circular. The work has been most satisfactory as regards improvement of standard. Inspection of dairies is made periodically, and testing of sample every two months, and the results are

published in the city press. As a sample the following report is given which may prove of use to other Boards :

HEALTH OFFICE,
BRANTFORD, September 15th, 1888.

Milk tests made in September, shewing specific gravity of the various samples. and also the percentage of butter fat as estimated by the lactoscope. Published by order of the Board of Health.

E. GRIFFIN, M.D.,
Medical Health Officer.

SAMPLES TAKEN FROM THE DELIVERY WAGGONS OF THE MILK VENDORS.

| No. of Sample. | Specific Gravity at 60 Centigrade. | Butter Fat Percentage. | NAME OF VENDOR. | No. of Cows in Dairy. |
|----------------|------------------------------------|------------------------|---------------------|-----------------------|
| 1 | 1032 | 3.13 | W. Dickie..... | 28 |
| 2 | 1031 | 3.25 | R. Greenwood..... | 9 |
| 3 | 1030 | 3.25 | Foulds Bros..... | 30 |
| 4 | 1031 | 3.25 | J. Alexander..... | 11 |
| 5 | 1032 | 2.88 | J. Crewe..... | 21 |
| 6 | 1029 | 3.25 | J. Burton..... | 11 |
| 7 | 1031 | 3.13 | G. Craddock..... | 18 |
| 8 | 1031 | 3. | R. Portus..... | 39 |
| 9 | 1030 | 2.75 | J. Brittain..... | 30 |
| 10 | 1031 | 3. | Brooke & Son..... | 36 |
| 11 | 1033 | 3.13 | S. K. Passmore..... | 20 |
| 12 | 1029 | 3.75 | W. D. Snider..... | 18 |
| 13 | 1032 | 3.63 | W. Reed..... | 3 |
| 14 | 1032 | 3.13 | J. A. Willis..... | 9 |
| 15 | 1031 | 2.63 | James Lee..... | 12 |
| 16 | 1033 | 3. | D. Duncan..... | 11 |
| 17 | 1031 | 3.25 | Richard Burke..... | 11 |
| 18 | 1033 | 2.75 | F. Wilkes..... | 2 |
| 19 | 1030 | 3.75 | Mrs. Knowles..... | 2 |
| 20 | 1031 | 3.50 | J. Jackson..... | 4 |
| 22 | 1030 | 3.25 | W. Read..... | 10 |
| 23 | 1031 | 3. | G. Walter..... | 18 |
| 24 | 1032 | 3.25 | P. Maloney..... | 5 |
| Average | | 3.17 | No. of Cows..... | 358 |
| Highest..... | | 3.75 | | |
| Lowest | | 2.63 | | |

SAMPLES OF WHOLE MILK FROM TOWNSHIP HERDS, NOT CONNECTED WITH THE CITY MILK SUPPLY.

| Sample. | Sp. Gr. | Butter Fat. | NAME. | Cows. | Remarks. |
|---------------|---------|-------------|-----------------|-------|--|
| A | 1032 | 3.75 | G. Hill | 30 | Common grade cows ; only feed poor pasture. |
| B | 1031 | 4.00 | F. Reed..... | 27 | Grade cows ; half their feed is green corn cut, the other half exceedingly poor pasture. |
| C | 1032 | 3.75 | C. Summerhays.. | 4 | Grade cows ; only feed pasture, not very good. |
| D | 1032 | 4.50 | D. Luck..... | 4 | Good cows ; fed on pasture, with a little chopped grain. |
| Average | | 3.90 | | 65 | |
| Highest..... | | 4.50 | | | |
| Lowest | | 3.75 | | | |

The minimum standard recommended by the Provincial Board of Health is 3.50 per cent.
The minimum standard in the State of Massachusetts is 3.70 per cent.

From the above it will be seen that—

3·75 was the highest percentage of butter fat in the 23 milk vendors' samples.
 2·63 the lowest percentage, and
 3·17 the average
 4·50 was the highest in the whole milk samples.
 3·75 the lowest, and
 3·90 the average.

Only 4 of the milk vendors' samples, representing 27 cows, were up to the minimum of the Ontario Board of Health.

The remaining 19 samples, representing 323 cows, were below the minimum of 3·50 of the Provincial Board of Health.

The low percentage of 3·17, average of all the milk vendors' samples, is doubtless due in part to bad pasturage this season; but there does not appear to be any good reason for these samples shewing only 3·17, while the whole milk samples of non-vendors, having common and and rather poorly fed cows, shows an average of 8·90.

If milk at 3·17, the average of the above 23 samples, is worth 5 cents per quart, then the highest sample, 3·75, is worth 6 cents, and the lowest, 2·63, 4 cents; and 1st quality rich milk like sample D above, with a percentage of 4·50, is worth over 7 cents per quart.

N.B.—We intend hereafter to publish account of condition of dairies, of cattle, quality of food, etc., etc.

Guelph.—No new by-law, but regulations after the form suggested in circular and a license were issued by the Local Board and periodical inspections of dairies were made. To illustrate the need, it may be mentioned that the Sanitary Inspector discovered that several cows of dairymen had suffered from anthrax, and that owing to the acute character of the disease it is not improbable that for a day or two before its onset these animals had been supplying milk altered in quality to the public.

Kingston.—Owing to persistent doubts on the part of the city solicitor as to the powers of the Local Board under Schedule A, the Local Board, after several attempts, have very recently succeeded in getting a by-law passed under the provisions of the Municipal Act regarding the inspection of foods. The length of the by-law ought to insure perfect inspection and, we trust, that the Board will be able to perform good work under its provisions.

St. Catharines.—Has made no provision for the regulation of dairies apart from the ordinary inspection which may be carried on under Schedule A of the Act.

Belleville.—Here the work was very efficiently carried out last year without special by-law, but now a special by-law has been passed and provision made for a license fee of \$1. A registration of all vendors is provided for in a book kept for the purpose. The forms for license and registrations, as also the regulations, are similar in form to those of the circular.

St. Thomas.—No regulations are in force there, but we trust to soon learn that regulation and inspection of dairies is being regularly carried out.

TOWNS.

Brockville.—Has a printed form of license similar in its provisions to that of Brantford, with an undertaking signed by the dairymen to carry out the regulations.

Walkerton.—Has a license and agreement similar to that contained in circular issued by the Board.

Orangeville.—Similarly has the two forms of license and agreement with the regulations as suggested in the circular.

Prescott.—The Local Board, by special resolution, have instructed the Sanitary Inspector to inspect and report to Board on all the dairies. No regulations have been adopted or licenses issued.

Trenton.—Issues a license in which the vendor agrees to supply milk up to the standard of circular, to keep premises in good condition, and report all contagious disease. A license fee of \$3 is collected and a veterinary surgeon employed to inspect cattle, and a register of all vendors is kept.

Chatham.—Has a by-law passed under sect. 489 sub-sec. 53 of Municipal Act, by which Medical Health Officer and Sanitary Inspector are appointed Milk Inspectors, and are empowered to inspect as under clauses *re* food adulteration; also a penalty for obstructing inspectors; for having stamped measures, and penalty for not having same; 14 per cent. solids and 3 per cent. butter-fat are the minimum standard of quality.

Simcoe.—Carries on the work of inspection and regulation under the amended by-law, Schedule A, of the Act.

Windsor.—Has carried on the work of inspection of dairies under the provisions of Schedule A, but has now under consideration a special by-law on the whole subject.

Owen Sound.—Has adopted the form of regulations and license set forth in circular making, however, 3 per cent. the minimum standard for butter fat.

Perth.—Has an inspection carried on under the amended Health By-law for the town, but no special regulation as licensing of dairies.

Kincardine.—Has a by-law under preparation looking to the close inspection of all milk supplies, whether for direct consumption or for use in creameries or cheese factories, and of cow-byres and dairies.

The following places have reported that no regulations or licensing of dairies are in force: Galt, Collingwood, Peterborough, Cobourg, Listowel, Mount Forest, Berlin, Ingersoll, Wingham, Woodstock, Stirling, Whitby, L'Orignal, Exeter, Thorold, Madoc, Meaford, Shelburne, Milton, Deseronto, Petrolia, Springfield, Aylmer, Tara, Port Stanley, Caledonia, Brussels, Bowmanville, Vienna.

We thus learn from the preceding reports the general condition of the milk supplies of the Province. Of the eleven cities seven are in a position to do effective work, and reports found in the annual returns show that good progress has been made. Of the towns some eight have taken steps to enforce systematic inspection of dairies, while a number of other places institute a general inspection of byres.

When it is remembered that the great proportion of our towns and villages have a population under 4,000, and many of them not more than 1,500, that as stated in answers to the circular some of these have no dairies within the corporation and that many persons keep cows of their own, it is manifest that though the necessity may exist on private premises for sanitary inspection in the matter of cleanliness, yet the extent of ground around each house, the limited number of animals on each, and the fact that the use of the milk is in most cases limited to one or two families make the necessity for inspection in these municipalities very much less than where the milk supply is by general distribution from several large dairies.

Some difficulty has been experienced by Medical Health Officers with reference to standards, which may be enforced, as also the means whereby the quality of the milk may be tested or established. Experience has, however, indicated the practical value of the lactometer and lactoscope, since those circumstances which affect its exactness do not exist practically under the ordinary conditions. We trust that other places may take advantage of the experience of those which, have during the past year regulated the sale of milk, and that a year hence will find a still closer watch kept over this source of food supply and national health.

SEWERAGE SYSTEMS.

In the report of the Secretary for last year remarks were made at some length upon the matter of "water supplies or their sanitary relations." Therein were discussed the conditions of soil, as regards ground water and organic pollution, which most notably affect the public health and the necessity for not only surface purity of the soil but of its aeration and drainage were set forth. Bearing directly, however, on the question of pure water supplies, is that of sewage disposal, since in the past it has been the rule, and is likewise too much the same at present, that rivers and lakes which are made the receptacles for the sewage of towns and cities are likewise the source from which supposedly pure public water supplies are obtained. That it should be possible for such unfailing sources of supply to be made safe from the sanitary standpoint does not admit of question, and yearly the matter is becoming a more urgent one to Ontario, where public water works are being increasingly introduced, thereby making the construction of sewerage works a corresponding necessity.

During the past year several towns have introduced public water supplies. Thus Goderich, Cornwall, Brockville, Brantford, Berlin, Cobourg, Wiarton, etc., have new public water, while nearly all of those cities where it has been already introduced have had to increase the capacity of their works. The question assumes further an additional importance owing to the fact that the demand for water increases *pari passu* with an increased pollution of those sources from which it is obtained.

The soil around a polluted well becomes yearly more polluted, while the demand on the well ordinarily is increased; while the streams with a less yearly quantity of water flowing into them owing to the drying up of the springs at their sources with the clearing away of the forests, are receiving from the growing populations on their banks a still larger amount of pollution.

But the two questions of pure water and proper disposal of sewage cannot by any casuistry be evaded; they have existed, and must exist, in every country where aggregations of people in settled communities exist. They are not absent even where numbers, as armies, are in movement. In Canada, there are as yet only a few places where positive necessity has forced cities and towns to act; but fifty years and more have with widening knowledge made many communities aware that their civic advancement—not to mention their public health—demands in the interest of commerce that they are possessed of these two modern conveniences, the gauge of a town's prosperity. Where does the capitalist look for a profitable investment? Not in a malarial town, without public drainage, not in a town where the public water if present is known to be bad, not in the place where there is no public supply for mill-wheels and steam power; but in those places where faith in the town's future has caused its councillors at the voice of the people to issue debentures as a business investment, for constructing works of these two kinds. The Southern States, only now arousing with new hope from the disastrous results of the recent war, recognize as the first condition of attracting capital that their towns must be supplied with water which is good, and sewerage works which are modern in their character and sufficiently extensive to relieve the soil from those organic pollutions which make yellow fever a scourge. In 1878 Memphis was decimated and her sad experience was the occasion of originating a system of separate sewerage, her absolute safety for the past ten years. Last year Jacksonville was similarly scourged, and we see her to-day having one of the most experienced engineers engaged in plans for perfecting her sewerage. Other cities living in dread, are only awaiting their ability to similarly protect themselves from this dreaded disease. England learnt a similar lesson, only after scourging from cholera and typhus; and North American cities have learnt the lesson in part—only after typhoid epidemics have ravaged them and diphtheria has borne away its victims. But the lesson is only partially learned; large cities, like Philadelphia and Cincinnati, are still using polluted river water and having deaths from typhoid running up to many hundreds annually.

Hospitals are erected and collections and endowments devoted to the support of fever wards in these cities, whereas if the Schuylkill and the Ohio had their *periods of purification* before mingling with the people, thousands would yearly have cause to bless the intelligent managers of public affairs, while the donations from public charities would have other avenues wherein to do their holy work.

Speaking for Ontario, it may fairly be said that those public works begun during the past few years have indicated an intelligent appreciation of the fact that both public water and public sewerage may become a curse as well as a public blessing. In no single case wherein by sec. 30, R. S. O. 1887, it has become the duty of a municipality to place their plans for approval before the Provincial Board of Health, has there been shown a desire to introduce works which were not likely to prove a benefit to the public interested. There have been practical financial considerations which may at times have prevented a municipality from doing all it would have wished, but water from pure sources has been sought, and sewage has been disposed of only temporarily in such manner as might be likely to prove detrimental to the public interest. Amongst the problems which have come up for solution is the disposal of Toronto sewage. The conclusions of the most recent expert examination are referred to on a later page of this report.

At Cornwall the question of disposal became an easy one, since the water had only to be carried into the current of the St. Lawrence rapids to be disposed of, we may fairly assume, with safety. Similarly at Brockville the sewage is forced far out into the St. Lawrence and lost sight of. At Owen Sound complaint is still made that the sewage is not carried for enough, but it may fairly be expected that, with the rapid development of that town, the sewage will be carried farther till it be forced into the lake waters. At London the pollution of the river still continues; but a fraction of the evil at this place is likely soon to be remedied by the sewage from the insane asylum being disposed of by means of a sewage farm.

These illustrations suffice to show that such work as is being done is being done along advanced lines. I am not aware of any place where sewerage works have been recently introduced in Ontario where the separate system has not been adopted. Three years ago Mr. Alan Macdougall, C. E., devised such a scheme for Stratford, while within the last two years Cornwall and Brockville have built separate systems under the guidance of Mr. Willis Chipman, C. E.; while Col. Waring has similarly disposed of the sewage of the London Asylum. What, however, our various towns and cities which have not yet constructed sewerage works want to know, is how their work may be done and at what cost.

Two years ago when Mr. Macdougall outlined a system of separate sewerage for Stratford, his estimate was based upon the prevailing figures of cost in American cities; but not until the Brockville system has been constructed has it been possible for me to obtain figures of actual cost of a system of separate sewerage in Ontario. I propose, therefore, to utilize for the benefit of interested municipalities figures from reports supplied by the town of Brockville.

Before referring to the questions of cost it may not be improper to state in a few words what work is included under the term "Separate System." In last year's Report Dr. Oldright, the Board's delegate to the "American Public Health Association," had an opportunity of inspecting the Memphis system of separate sewerage. In it he refers to "the small-gauged sewers of the system, excluding all storm and rain-water." Perhaps it would not be improper to call them *sewage* sewers in contradistinction to drains for storm and surface water. Such systems now exist in many other places, as at Pullman, Ill., Binghamton, N.Y., Norristown, N.J., Schenectady, N.Y. Says Prof. Staley and Mr. Pierson, C.E., regarding it, "The introduction of the separate system marks an important era in the development of sanitary drainage, recognising as no other system has, the prime importance of an early removal of household and industrial wastes, which are the main factors in soil pollution. That it will best meet the requirements of all large and dense populated cities (economy considered) is not probable. That under competent advice, it can meet the requirements of *house drainage* more perfectly in any

city than the combined system, cannot be denied. It is peculiarly adapted to many of the numerous smaller cities, which have been practically debarred from sewerage by its cost, and to outlying portions of larger ones. Its comparatively small cost permits an early and general extension, and the removal of domestic wastes before the soil has become saturated with them beyond a reasonable hope of purification."

These writers further show that seven-eighths of all the cities in the United States have a population less than 25,000, and about two-thirds less than 10,000 inhabitants.

From the statements here quoted it is manifest that for Ontario we have in the "separate system" one almost universally applicable.

With regard to the general characters of the system I cannot do better than quote the words of the Brockville report as given by the Engineer, Mr. Chipman :

"1. The system of sewers adopted in the town of Brockville is the Modified Separate System, and is designed to carry off (1) liquid house wastes, (2) excreta, (3) a limited amount of roof water, (4) sub-soil water, (5) cellar water.

"2. The main sewers and laterals consist of vitrified, salt-glazed sewer-pipe, called *sewers*, designed to carry the liquid house wastes, excreta and roof water.

"3. Alongside the *sewers* are laid agricultural drain tiles, designed to carry the sub-soil water and cellar water.

"4. This system is not designed to carry street water, garbage, ashes, vegetable parings or rubbish."

When the system is completed the sewage from the whole town except the small portion west of Shepherd Creek and south of the G. T. Railway will be conveyed to one outfall at the lower end of the town and discharged through a submerged iron pipe into the river.

The sizes and grades of sewers adopted are such that sewage entering a sewer from any of the buildings farthest removed from the outlet along the line of sewers will be discharged at the outfall in less than 90 minutes.

At the head of each sewer is placed an automatic flush tank, arranged to discharge 200 gallons of water as often as may be desired. This volume of water being discharged through a large opening under considerable head, completely fills the 9 inch pipe for several hundred feet at minimum grades, and insures a thorough flush where most required, at the point where the average regular flow is the least. The flush tanks now in operation are working perfectly, keeping the sewers clean at all times with a comparatively small quantity of water. * * * *

Construction.—"With the exception of the sewers on Water street and on Thomas and Ann streets, all sewers have been laid in the centre of the street, and in all cases each sewer has been laid with a uniform grade and in a straight line between manholes or between a manhole and a lamphole or flush tank.

By this method of construction any section of a sewer can be readily inspected and easily cleaned if necessary. The loss of velocity by adopting successive chords instead of a curve is small, and the advantages are so great that in only one place has a curved pipe been used in the street sewers; the junctions of mains and laterals being made inside the manholes.

Junctions were put in for every house and opposite each vacant lot at such points as the owner directed. In the absence of the owner the engineer or inspector placed them as he thought best." * * * *

Materials.—"Scotch sewer pipe was used on Water street, east of tunnel, and on Thomas and Ann streets. On all other streets Standard sewer pipes, manufactured at St. John's, Quebec, have been used.

Considerable difficulty was experienced in getting proper sized drain tile in such quantities as we required at different times during the season, a difficulty that will probably not occur again.

Portland cement and Brockville bricks have been used throughout.

The cement used was tested by subjecting briquettes of one square inch cross section to tensile strain after 24 hours immersion in water after setting. This test, although not favorable to slow setting cements, is probably the best of any for cements for jointing sewer pipes. What is there wanted is a quick-setting cement, especially in wet trenches."

Records and Plans.—"Records have been kept of the work done showing the grade and depth of every sewer, the location of all manholes, flush tanks, lamp-holes, etc., the positions of all gas mains, water mains, drains, and the service pipes for gas and water met with in the trenches. Also the position and extent of all rock excavated.

The profiles and plans upon which tenders were called have been converted into *final* plans by plotting therein all Y junctions, gas and water pipes, drains, rock excavation, etc., but it would be better if proper final plans were prepared, the sheets to be uniform in size and bound into volumes after completion. In a few years the present profile plans will be worn out from frequent reference."

We have thus given an outline of the nature of the work done in Brockville during the past year, or being at present carried on. As it is the first town in Canada in which the cost of the "separate system" has been established by actual experiment, I shall quote the table of cost as given in the report.

| SEWER. | Labor. | | Materials. | | Sundries. | | Engineer- ing. | | Inspect- ing. | | Total. | | Per centages unpaid. | | Total cost of Sewers or of part completed. | | Length of Sewers completed in feet. | | Cubic yards of rock. | | Contractors for Labor. | |
|------------------------------|--------|----|------------|----|-----------|----|-------------------|----|------------------|----|--------|----|----------------------|----|---|----|---|--|----------------------|--|-------------------------------|--|
| | \$ | c. | \$ | c. | \$ | c. | \$ | c. | \$ | c. | \$ | c. | \$ | c. | \$ | c. | | | | | | |
| General | | | 110 | 26 | 158 | 90 | 71 | 00 | | | 340 | 16 | | | 340 | 16 | | | 4 | | J. F. Ward. | |
| Main outfall..... | 4,430 | 40 | 2,448 | 12 | 47 | 37 | 145 | 00 | 78 | 00 | 7,148 | 89 | | | 7,148 | 89 | 923 | | | | Wood & Logan, Harry Welch. | |
| Water Street E. Tunnel .. | 3,455 | 51 | 1,340 | 50 | 320 | 49 | 200 | 30 | 225 | 00 | 5,541 | 80 | 742 | 33 | 6,284 | 13 | 1,620 | | 487 | | Wood & Logan, Wm. Donovan. | |
| Thomas and Ann | 2,359 | 88 | 589 | 44 | 47 | 80 | 145 | 75 | 128 | 00 | 3,270 | 87 | 62 | 20 | 3,333 | 07 | 1,254 | | 521 | | Harry Welch. | |
| *Water and Jane, Sec. 2..... | 1,666 | 18 | 1,203 | 80 | 39 | 14 | 44 | 00 | 75 | 50 | 3,028 | 62 | 524 | 88 | 3,553 | 50 | 1,272 | | 70 | | McGuire & Jackson. | |
| Broad | 150 | 75 | 165 | 16 | 2 | 65 | 12 | 50 | 18 | 00 | 349 | 06 | | | 349 | 06 | 367 | | 5 | | Armonr & Cunningham. | |
| Market | 1,161 | 93 | 485 | 24 | 30 | 61 | 78 | 50 | 51 | 00 | 1,907 | 28 | 128 | 17 | 1,935 | 45 | 1,302 | | 1 | | S. A. Wilsie. | |
| Orchard | 1,131 | 75 | 463 | 92 | 19 | 96 | 70 | 00 | 43 | 00 | 1,728 | 63 | 125 | 75 | 1,854 | 38 | 1,175 | | 5 | | M. Bradly. | |
| Ormond and Pine | 949 | 91 | 356 | 94 | 12 | 34 | 71 | 00 | 60 | 00 | 1,450 | 19 | 105 | 54 | 1,555 | 73 | 879 | | 53 | | T. J. P. Doddridge. | |
| Bethune and branches | 2,079 | 74 | 1,241 | 50 | 33 | 93 | 167 | 75 | 167 | 75 | 3,690 | 67 | 520 | 03 | 4,210 | 70 | 3,277 | | 25 | | J. D. Swartwout. | |
| +King, West | 883 | 48 | 263 | 12 | 11 | 48 | 84 | 50 | 100 | 00 | 1,342 | 58 | 280 | 22 | 1,622 | 80 | 731 | | 139 | | Armour & Cunningham. | |
| +King, East..... | 1,291 | 00 | 217 | 70 | 7 | 78 | 74 | 25 | 64 | 50 | 1,655 | 23 | 274 | 68 | 1,929 | 91 | 600 | | 207 | | | |
| Plumbing | | | | | 60 | 45 | 60 | 00 | 65 | 00 | 185 | 45 | | | 185 | 45 | | | | | | |
| Total | 19,560 | 53 | 8,885 | 70 | 792 | 90 | 1,224 | 55 | 1,075 | 75 | 31,539 | 43 | 2,763 | 80 | 34,303 | 23 | | | | | | |

* Completed in January, 1889, at an additional cost of about \$350.

† Not yet completed.

From this table we learn that "the average cost per lineal foot of the 9-inch sewers built as local improvements on Market, Orchard, Bethune and branches and Ormond and Pine streets, has been about \$1.55. The average cost of the main sewer east of the tunnel about \$3.88 per foot, and the cost of the part west of the tunnel about \$2.80 per lineal foot." Part of this was more expensive than was estimated owing to there being more rock than was anticipated.

I have compared these tables of cost with those of the cost of works of a similar character given by Staley and Pierson in their work. The total cost in Schenectady was .72 per lineal, while that given as the cost of a section for Keene, N. H., is given at \$1.29½ per lineal foot. It is remarked, however, that those low costs could probably not be repeated owing to the prices of labor, material, etc., and that from 10c. to 20c. on these estimates should be added.

The cost of the Brockville system when the uneven character of the soil, the very considerable amount of rock excavation, the new character of the work, and the difficulty in getting the proper materials just as required, are considered, cannot be thought of as other than moderate, and it may fairly be assumed that in the great majority of towns in Ontario the price of the work would be very considerably reduced.

From the estimates given it is manifest that the question of financial ability on the part of any of our growing towns to provide sewerage for the benefit of its citizens is solved in the affirmative, and with plumbing now reduced to a system greatly simplified in its details and cost, we may fairly affirm that with public systems of water supply, where this is from a reliable source, and with plumbing and sewerage properly constructed it will be possible to practically eradicate those diseases which are due to bad water and sewage from houses.

But much of the permanent benefits to be derived from a sewerage system in any town will depend upon the systematic superintendence of all parts of it by the town engineer's department. To this end it is necessary that not only should plans and details of all street sewers be carefully made and preserved but also that the same be made of all house-drains and plumbing. Houses are sold or rented by successive tenants and often it is impossible without much trouble and expense to discover afterwards their location and construction. The following outlines for a registration of plumbing and house drainage plans, supplied by the Brockville sewer commissioners may be examined and with advantage followed.

The first step is where a householder gets notice from the medical health officer, when a street sewer has been constructed to put in house plumbing and drainage to connect with the sewer.

FORM I.

OFFICE OF THE BOARD OF HEALTH.

BROCKVILLE, Ont., ———, 188—.

To ———

TAKE NOTICE.—That the discharge of house-wastes and sewage through the drain from your premises, situated on the _____ side of _____ street, between _____ street and _____ street, is contributing to create a public nuisance, and is liable to contaminate the public water supply.

You are therefore notified that the use of such drain for discharge of house wastes and sewage is hereby prohibited. A continuance of the nuisance will be followed by a prosecution as provided by statute.

A proper public sewer is now constructed on the street adjoining the above premises, designed to carry all your water wastes from sinks, baths, water closets, etc., and it is desirable that you should make proper connection with it.

By applying at the office of the Sewer Commissioners, all necessary information respecting the making of connections with the street sewer can be obtained.

(Signed)

HARRY E. VAUX, M.D.,
Medical Health Officer.

Application as per the following Form II. is made to the Sewer Commissioners to construct a house sewer and plumbing.

FORM II.

Application for Sewer Connection.

No. 30.

BROCKVILLE, 20th April, 1889.

To the Sewer Commissioners:

I, the undersigned, hereby apply for permission to construct a house sewer and make sewer connection with the main sewer on Orchard Street, from premises situated on the east side of Orchard Street, between King Street and Pine Street, owned by Geo. R. Webster, to be occupied by Geo. R. Webster as a residence. The plumbing fixtures are as follows:—Bath tub, kitchen sink, two wash bowls, and one water-closet, which work is being done by plumbers, Stetsen & McBrearty, about April, 1889. (See plumbing application No. 13).

I hereby agree that all work done shall be strictly in accordance with the provisions of the "By-law regulating the sewers in the town of Brockville," and the "Rules and regulations prescribed by the Board of Sewer Commissioners," and that all claims against the town of Brockville or the Board of Sewer Commissioners for damages occasioned in any manner by the execution of the above work shall be satisfied by me.

(Signed) GEO. R. WEBSTER, Owner.

GEO. R. WEBSTER, Occupant.

Diagram.

Permit granted, 20th April, 1889.

Work commenced, before April 20th—inside.

Work completed, 23rd April.

Inspected by S. A. Logan—saw connection made and pipes laid.

Dates of inspection, 23rd April.

Remarks. Work done by Stetsen & McBrearty.

As per the following Form III., the application is granted.

FORM III.

BROCKVILLE SEWERS.

House Sewers and Drains.

Permit No. 23.

Date, 20th April, 1889.

Application No. 30.

To Geo. R. Webster.

Work to be commenced, at once.

By Stetsen & McBrearty.

BROCKVILLE SEWERS.

House Sewers and Drains.

No 23.

BROCKVILLE, 20th April, 1889.

Permission is hereby given to George R. Webster to execute the work specified in application for sewer connection No. 30, in accordance with the provisions of the By-law regulating the sewers in the town of Brockville, and the rules and regulations prescribed by the Board of Sewer Commissioners.

(Signed) WILLIS CHIPMAN,
Engineer.

The owner then engages a plumber to prepare a specification, and having made an estimate of cost the plumber submits his plans for approval to the engineer of the department, as per Form IV.

FORM IV.

BROCKVILLE SEWERS.

Plumbing Application No. 13.

BROCKVILLE, Ontario, 10th April, 1889.

To the Sewer Commissioners:—

We, the undersigned, hereby apply for permission to do the plumbing work in the premises on the east side of Orchard Street, No. 217, owned by Geo. R. Webster, in accordance with the following description and plan:

| Fixture. | Pattern. | Waste. | | Size Trap. | Vent. | |
|--------------------|--------------------|--------------|------------------|------------|---|--------------------|
| | | Size Inches. | Weight per foot. | | Size Inches. | Weight per foot. |
| Water closet..... | Sanitary. | | | | Room vented into cock-loft by shaft 8 x 12. All to be done according to rules and regulations. | |
| Bath tub | Copper, 14 oz. | | | | | |
| Wash bowl | Oval, marble. | | | | | |
| Kitchen sink ... { | Cast iron 30 x 18. | | | | | |
| Slop hopper | | | | | | |
| Urinals | | | | | | |
| Fixed wash tubs.. | | | | | | |
| Fixed wash trays.. | | | | | | |
| Soil pipe..... | Cast iron..... | | | None..... | | Vent through roof. |

We hereby agree to conform strictly to all the rules and regulations adopted by the Sewer Commissioners, and to give due notice when work is ready for inspection.

(Signed) GEO. R. WEBSTER,
Owner or Agent.

(Signed) STETSEN & McBREARTY,
Licensed Plumber.

The work having been completed the department is notified, and an inspector sent to examine the work and to report.

The following illustrates such report:

FORM V.

BROCKVILLE SEWERS.

Plumbing Inspections.

April 22nd, 1889.

Inspected plumbing on first floor, found plumbers at work on sink connection.

(C. J. M).

April 25th, 1889.

Inspected plumbing. Found vent pipe of basin too low below top of trap to prevent syphoning. Notified plumber to have it changed.

C. J. M).

April 26th, 1889.

Found vent for the basin trap altered to top of said trap. Found vent of water closet connected by a putty joint; ordered its removal, and that a rubber joint be used instead.

May 1st, 1889.

Inspected plumbing. Applied water test. Found everything satisfactory.

CESURE J. MARANI.

The work having been finally completed to the satisfaction of the department, a compend of the work is made and filed away in the ledger of the department of the Sewers Commissioners for future reference, as per the following form :

FORM VI.

BROOKVILLE SEWERS.

Plumbing Inspections

Application No. 13. Date, 10th April, 1889. Plumber, Stetsen & McBrearty. Owner, Geo. R. Webster. Premises on the east side of Orchard Street.

Description.

| Fixture. | Pattern. | Waste. | | Size Trap. | Vent. | | Remarks. |
|--------------------|--|--------------|------------------|------------|---------------|------------------|---|
| | | Size Inches. | Weight per Foot. | | Size Inches. | Weight per Foot. | |
| Water closet.... 1 | Sanitary. | 4 | Lead bend | 4 | 2 | lbs. 3½ | All in accordance with rules and regulations. |
| Bath tub 1 | Copper, 14 oz. | 1½ | ..... | ..... | 1½ | 2½ | |
| Wash bowl..... 1 | Marble..... One not enclosed with wainscoting. | 1½ | ..... | 1½ | 1½ | 2½ | |
| Kitchen sink ... 1 | Cast iron..... | 1½ | ..... | 1½ | 1½ | 2½ | |
| Slop hopper .... | ..... | ..... | ..... | ..... | ..... | ..... |  |
| Urinals ..... | ..... | ..... | ..... | ..... | ..... | ..... |  |
| Fixed wash tubs. | ..... | ..... | ..... | ..... | ..... | ..... |  |
| Fixed wash trays. | ..... | ..... | ..... | ..... | ..... | ..... |  |
| Soil pipe 4 | Cast iron..... | | | None... | Through roof. | | |

The health history of each house in the town ought theoretically to be kept with these plans, but as this would belong to the department of the Medical Health Officer it would not be difficult under a proper system for a person wishing to buy or rent a house to get complete information regarding it from both departments.

DISPOSAL OF SEWAGE.

This subject very naturally becomes of interest in connection with the development of all sewerage systems, whether separate or combined. Advantageous as the separate system of sewerage is, it certainly, were the great advantage of rapid delivery not on its side, does pour forth its sewage in a more concentrated form than the latter; and if this delivery should be into a small stream, the nuisance resulting from such a method of disposal would be of a serious character.

In this Province, with its system of inland lakes, situated upon the shores of which are our largest cities, the dangers associated hitherto with the disposal of sewage by pouring it into these waters have not been great; but their increased use as sources of water supply, the rapidly increasing population and the construction of sewerage systems in many towns, all demand that the question receive careful consideration on the part of health authorities. That this is being done to some extent may be gathered from the schemes which, under Section 30 of the Public Health Act, 1887, have been submitted for the consideration of your Board; and by the various propositions which are at present being made to Toronto, London, etc., for solutions of the problems they have respectively to deal with.

As frequently remarked in reports and pamphlets already issued by the Board, there are three ordinary methods for disposal of sewage, and each of them to-day has its special advocates, while almost every sanitarian is agreed that according to circumstances each may be suited to its own particular case. Thus, as things are at present constituted, with a comparatively small population, an uneven surface and a rocky soil in and around Brockville, while past the town flows the St. Lawrence, with an enormous volume of water, to the rapids below, and no town very near, the pouring of its sewage into deep water in the river below the town was a proper disposal. On the other hand, with currents westward at times and no notable eastward movement of the waters of the lake, it becomes a grave question to decide whether Toronto, in her own interests, can pour sewage into the lake to the west of Scarboro' Heights and at the same time pump her water supply from outside the Island. London again is confronted with an injunction restraining her from pouring her sewage into the Thames, a small stream on the banks of which suburban residents are subject to the effluvia from the shores during the low water of the later summer months. We have in such cases to enquire whether one or other of the two methods left at our disposal can be utilized with advantage in these and the numerous other cases which in coming years will, in Ontario, demand consideration.

Already, in one instance, has it been attempted to solve the problem of disposing of the sewage upon the land, by laying out at the Asylum for the Insane, London, a sewage farm with the various structural accessories necessary to it. The following details of the farm are a matter of some interest, and as they have been submitted to and approved of by the Board, they may be of interest in this connection.

The following extracts are taken from Col. G. Waring's report to the Department of Public Works. Having referred to necessary improvements in the plumbing and the carrying of the various drains to the main sewer from the buildings, he says:

(1) At the head of this drain and outside of the building, there should be placed a fresh-water flush-tank with a discharging capacity of 150 gallons, which should be supplied with water by a small stream sufficient to fill it once or twice in twenty-four hours. When filled to the overflow point it will discharge its contents rapidly and flush the six-inch drain leading from it to the main tank. In this case, as in all others, the vertical soil pipe, or connections, must be so vented that the flood of water delivered through the sewer by the flush-tank, cannot draw the water out of their traps. Where ventilation is not now carried above the roof of the building, traps may be protected by the use of McClellan's mercury seal trap, made by the Dubois Trap Co., of New York city.

This is easier and more cheaply applied than continuous vent pipes, and is at least equally effective. At this point all of the fixtures should be carried to one outlet instead of having two, as now.

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In laying the new drains beyond the length of iron pipe passing through the foundation, only the best vitrified drain pipe of true form should be used, great care being taken that the sockets are in all cases large enough to admit of a quarter-inch gasket of oakum to be driven to the bottom of the joint. This gasketing being well driven home, mortar made of one part of cement and one part of sand should be firmly pressed into the joint, rubber mittens being used instead of a trowel. When the joint is full it should be smoothly bevelled in the angle between the socket and the pipe.

Pipes should be laid on their full beds, the bottom being dug out to give room to the sockets.

The filling should be carefully packed at the sides of the trench to the height of the middle of the pipe, great care being taken not to displace the pipes and open the joints. The next foot of filling should be of fine material, carefully put in place and lightly rammed. From this point up the earth should be well rammed to the top.

With a pipe of this size there are objections to the use of manholes. I recommend in their stead the use of oblique inspection pipes, set in pairs at intervals of about 300 feet. The castings for these can be procured from the Dececo Company, Newport, R. I. The cost will be somewhat less than the cost of manholes. The plan of the buildings and of the grounds indicates the location, arrangement and size of the present drains, which are used for the removal of foul wastes and of storm water. I advise that these drains remain unchanged, except so far as is necessary to cut off the connection between them and all sources of foul sewage, leaving them to continue their present service so far as the removal of storm water is concerned. These are the drains indicated on the plan submitted to me. The plan sent herewith shews in red lines the new drains recommended for the collection and removal of foul wastes. These all lead to an underground tank, to be constructed, as shewn, to the rear of the west wing of the main building.

The details of this tank are shewn in the drawings. Its interior size is 70 feet by 40 feet. Its walls are 16 inches thick. Its bottom is of concrete. It is covered by three longitudinal arches, 12.66 feet span, 12 inches thick. These arches rest on two longitudinal walls with arched openings. The floor of the tank is graded as shewn, varying between elevation 31.9 and 32.3 respectively. Each section has a longitudinal drainage gutter, with its upper end at 32.22 and its lower end at 31.98, 31.94, 31.90, with a cross gutter leading to a sump four feet in diameter with its bottom at grade 30.0.

The bottom of this sump is hemispherical, and the suction pipe of the pump is centrally located, having six inches space between its mouth and the bottom. This mouth should be bell-shaped, not straight as shewn in the drawing.

The elevation of the ground at this point is 47.5, making the surface of the floor of the tank about 15 feet below the surface.

There are three manholes at each end of the tank, with covers at the surface of the ground. At the receiving end of the tank, at the head of the central chamber, is a screening chamber reaching to the surface of the ground and with its bottom at elevation 34.4.

The opening from this chamber into the tank is 8.33 feet wide, and it is provided with a screen carried in slots in the side walls 4.5 feet high in the centre. This screen is to be made of wrought iron and galvanized. The vertical bars to be of half-inch round iron, and the openings between them one inch wide. The top of this screening chamber is covered at the surface of the ground with a hinged wooden cover. The plan of the tank shows iron tie rods at 10 feet intervals.

These will not be needed if, as is probable, the earth will afford a sufficiently firm support for the walls to prevent spreading from the weight of the arches before the filling becomes firm.

As shown in the drawing, there are three lines of drains entering the screening chamber. The one leading from the Superintendent's house enters at grade 36.3, while those from the outer buildings enter at grade 43.0.

It is intended that the tank shall be filled to a depth of five feet, or to the spring of the arches. Its capacity to this point is a little more than 100,000 gallons. The precise location of the pump is not fixed. It is to be placed wherever the architect shall find it most convenient in connection with other work, but it is assumed that it will be about 60 feet east from the sump corner of the chamber. This pump is to be placed in a pit having its bottom at grade (?) It is a six-inch Webber rotary pump with a ten-inch suction, and with a force main leading to the north-east corner of the north field. This force main is ten inches in diameter and 2,500 feet long.

Near the pump chamber, as shewn, this force main has a branch eight inches in diameter leading to the receiving well of the west absorption field, a distance of 1,650 feet.

I recommend for these force mains "Spiral Weld" steel pipe, with an impermeable coating.

The eight-inch force main has a gate near its connection with the ten-inch main, to be closed when it is desired to pump to the north field. When the gate is open the whole flow will pass through the eight-inch main, which delivers at much less elevation than the ten-inch.

It is assumed that the tank will hold one day's sewage. It is not very material whether it is somewhat more or less.

As the levels have not been received for the north field, I am sending now only the arrangement for sewage disposal on the west field, which has an available area of about 30 acres. This arrangement is shewn in the drawings.

The receiving well at the point shewn is to be constructed as shewn in the drawings.

Its inlet is at the bottom, and the force main has a continuous rise from the pump. The pump has no valve. Therefore, whenever the pump is stopped the contents of the receiving well and force main will flow back into the tank, so that there will be no trouble from freezing.

At the highest part of the field, a tract, occupied in the drawing by parallel red lines, west and south of the receiving well, is brought to an absolute level at an elevation of about 45.8.

This level tract is laid off in communicating parallel ditches as shewn by the red lines, and is underdrained as shewn by the blue lines. The main outlet from the receiving well has a fall of one in 500. At its lower end it delivers into a distributing ditch, which is continued by a carrier parallel with the west side of the field, from which carrier two distributing ditches, BB and CC, are laid, as shewn.

The carrier ditch has the natural fall of the land, the distributing ditches have a fall of one in 500. At a point south-east from the level field there is a short level catch ditch, "AA," intended to intercept the surface flow of sewage down the steep slope near it, and distribute more evenly over the depression below. The need for the catch ditch may be avoided by such grading at this part of the tract as will bring the contours more nearly parallel. The drawings show the details of construction of the details of the irrigation field.

The main outlet from the receiving well is to be made of half pipes (vitrified). This pipe is to be without sockets, and is to be laid in vitrified collars, or sleeves, as shewn.

The pipes may be laid an inch apart. They are depressed six inches below the general surface of the ground, the earth being sloped back from the inside of the pipe, as shewn in the section.

At the end of each of the parallel ditches, connection with the main outlet channel is made by a concrete branch piece, constructed as shewn in the plan. It would be difficult to secure half branch pieces of vitrified pipe.

The concrete should be made with the best Portland cement, and should be thoroughly hardened before frost, and well hardened before the laying of the vitrified connections. The gate slots shewn in the plan of the main outlet are one and-a-half inch spaces between the half pipes and the concrete branch pieces. They are to be furnished with movable iron or wooden gates, by placing and removing which the flow of sewage can be directed at pleasure into all or any of the parallel ditches. The connection between the concrete branch pieces and the ditches, is made with two lengths of vitrified pipe (four feet). As the bottoms of the ditches are all in the same plane, and as the main outlet has a fall, there will be a drop of varying height from the half pipes into the ditches. At this point, and even where the drop runs out at the lower ditch, the bottom of the ditch should be roughly but strongly paved, as shewn, to check the flow and prevent the cutting of the bottom at that point. The relation between the half pipe and the ditch is shewn in the "Section of Settling Ditch." These ditches are eight feet wide at the top, two feet wide at the bottom, and one-and-a-half feet deep. They are separated by beds ten feet wide at the surface. This level area with its settling ditches may be used for intermittent downward filtration, and as the total capacity of the ditches is equal to twice the capacity of the tank, even were there no immediate filtration, the area could be worked in two sections alternatively. Making allowance for filtration during pumping, it probably can be worked alternatively in three areas. Two or four of these ditches at the lower side of the field may be used, if found necessary, as settling ditches to deposit heavy matters before delivering the liquid over the surface of the irrigation tract below.

It will make little difference, so far as the delivery by the distributing ditches is concerned, whether the sewage runs through the parallel lines or not. Its final delivery will be from the end of the main outlet into the head of the upper distributing ditch.

The section of the distributing ditch should be about as shewn in the drawing of the "Section of Carrier and Distributing Ditches," which are four-and-a-half feet wide and one foot deep.

If the flow through the distributing ditch is arrested at any point, as it may be by sticking a wrought iron gate into the earth, making a dam across the top, the sewage will overflow for a greater or less distance above the dam, according to the volume of the current. If the dam is placed first at the lower end of the upper distributing ditch it will overflow, for example, 200 feet above the dam. When the ground to be reached by this overflow has received a sufficient supply of sewage, the dam is placed higher up stream, and the overflow carried over the next section of 200 feet, and then, in like manner, to the third section. Should the ground between the two ditches not be able to absorb all the sewage discharged upon it, the overflow will be caught by the second distributing ditch, BB, and if its quantity is sufficient can have its distribution regulated by the placing of a dam there as above.

It is probable that in ordinary conditions of the soil there will not be much passage of sewage from one ditch to another unless from the west end of BB, to that end of CC. It would, of course, be possible to regulate this distribution more exactly by bringing the whole field to a careful grade, but I think a satisfactory result will be obtained without going to this outlay.

At the lower end of the field, shewn by a black line, is a ditch for the removal of any excess of sewage that may reach that point. It is not likely that there will be any considerable flow to this line, and when it is reached it will have been thoroughly clarified by passing over the ground.

The main outlet is 400 feet long; settling ditches have an aggregate length of 8,600 feet; the carrier and distributing ditches have an aggregate length of 3,100 feet, and the tile drains aggregate 6,600 feet. The outlet to the underdrainage six-inch tile is to be six feet deep at the end of the upper bed, six-and-a-half feet deep at the lower bed. The lateral drains are to be four-inch tile for the lower half, and three-inch tile for the upper half. The upper ends of these laterals are to be four feet below the surface of the beds, and they are to be carried on a true grade to the six-inch outlet pipe.

In excavating for the tank, cut first a trench five feet wide, having its outer side on the exact line of the walls, carrying the trench to grade 31.0. This will allow the bank to be braced if it has a tendency to cave. If the bank stands straight, the brick-work can be built directly against it, the small voids being filled with concrete. If the caving is considerable the walls should be built true and the voids filled with sand thoroughly rammed, *after the wall has set firm*.

I assume that no specifications for the brickwork are needed in your case, but I suggest that only the best Portland cement be used in the proportion of at least one of cement to two of sand.

Great care should be taken that every brick is fully bedded in cement, on the sides, beds and ends. The walls should stand on a concrete footing, to be afterwards continued as the floor of the tank.

The gutters for the drainage of the floor may be moulded in the concrete. After the work is finished, the whole floor, walls and arch, should be smoothly rendered with a skin of neat Portland cement.

The ventilation of this tank will be in connection with the manholes, probably also in connection with the chimney-stack. Details for this will be sent later.

The following report on Col. Waring's plans expresses the Board's view of this matter:

PROVINCIAL BOARD OF HEALTH, ONTARIO,
TORONTO, September 12th 1888.

To the Chairman and Members of the Provincial Board of Health:

GENTLEMEN,—Your committee having received, along with a communication from Dr. W. T. O'Reilly, the Inspector of Public Institutions, the plans for the proposed construction of a system of irrigation for disposing of the sewage of the London Asylum, begs leave to report thereon as follows:—

1. That it gives your committee especial pleasure to view the efforts which have been made by the Ministers of the Departments having charge of Public Institutions and Public Works, and by their deputies, for the solution of the difficult problem of the disposal of the sewage of one of our largest public institutions in such a manner as is in keeping both with the law against the pollution of streams and with those more modern scientific methods which, from time to time, have been recommended for adoption by this Board to different towns and cities in the Province. It is only proper that the Government should be the first in the Province to undertake the system of disposal of sewage on land by a method which, however successful it may have been

elsewhere, must still be considered an experiment in Canada, since, if successful, it will serve as an object lesson and educating medium to our many municipalities which have to deal with similar questions ; while, if but a partial success, it will still have been an expenditure incurred in the interests, presumably, of the whole Province.

2. Your committee would concur most heartily in the preliminary observations of Col. Waring to the effect that it is essential to any fair test of the proposed system of sewage disposal, that the house drains and plumbing throughout should be of such a character as to make impossible of occurrence therefrom any evil results (such as outbreaks of typhoid fever, diphtheria, etc.,) which might be unjustly charged to the sewage farm ; and your committee would further add that the improvements in the plumbing proposed are of such a modern nature (examined without any special knowledge of the building) viewed generally, as to commend themselves almost without exception to your committee.

3. Your committee, not presuming to pass judgment on the work of so eminent an engineer as regards the details and construction of receiving tank, pumping mains, and the many other questions of a mechanical nature in connection with the proposed system, assumes them to be, as they are as far as our observation and reading have gone, of a character fully abreast of all modern work in this field.

4. The question of how best to utilize or finally dispose of the sewage when arrived at the receiving tank has been one of much difficulty everywhere, as is fully set forth in the following reports :

1st. The report of a committee appointed by the Local Government Board (Great Britain) to inquire into the several modes of treating town sewage, 1876.

2nd. The purification of water carried sewage by Robinson & Melliss, member Ins. C. E., Eng., 1877.

3rd. Sir R. Rawlinson's plans for main sewage, drainage and water supply, 1878.

4th. Commission technique de L'assainissement de Paris, 1883.

5th. S. M. Gray's report on proposed plan for a sewerage system for City of Providence, R.I., 1884.

6th. Recent reports from various papers and journals *re* irrigation farms at Gennevilliers, Berlin, Coventry, Pullman, etc.

Some of the conclusions your committee would gather from these reports are :

1st. That the character of the sewage of different towns as regards its contents and dilution alters somewhat the difficulties of preventing a nuisance when the sewage is poured upon the land.

2nd. That the dangers of a nuisance are increased or minimized by the particular method of irrigation adopted.

3rd. That broad irrigation without underground drainage does create a nuisance in heavy soils. (See Robinson & Melliss, p. 99, etc., etc.)

4th. That raw sewage can be poured on an open, gravelly soil without creating a nuisance. (See Rawlinson, p. 18.)

5th. That the method proposed in the combined broad and flat-bed scheme of Waring is likely to prove, with flat-bed subsoil drainage, that careful and intelligent supervision will enable the farm to be carried on practically without nuisance.

Thus says Proust before the French Commission :—

"It is necessary to maintain the greatest possible aeration of the soil, to distribute water regularly, that is, in even quantities and equal intervals of time, in such a way that its descent through the soil lasts at least the time desired for its purification ; to take, when necessary, measures for drawing off water from the soil (sub-soil drainage). In a word, never to allow it to accumulate in the soil." Brouardel, however, in his examination before this Commission, was not absolutely certain that injury might not come from infectious particles being lifted into the air from the sewage fields, and is supported in his fears of possible trouble by Pasteur, Frankland, etc.

Durand Claye, the Engineer of Gennevilliers, states that the statistics proved that with typhoid epidemic in Paris in 1883, there were during the same year only two cases of typhoid in the commune of Gennevilliers (and they were imported from Paris) in which the great sewage farm is.

6th. Speaking for ourselves, after a careful review of the biological facts which form so prominent a part of the question of sewage farms, we would say that the sources of possible

danger pointed out by Pasteur being due to the development of bacteria during the putrefying processes which the sewage undergoes, with the subsequent transportation by winds of said bacteria from the surface of the soil when it becomes dry (as is the case with the germs of malaria or ague from drying marshes) can, we believe, in a large degree be obviated :

(a) By the green crops, such as rye grass, which are found to do best on the broad irrigation surfaces, i. e., between the distributing drains A, B, etc., preventing the rise of bacteria, at times possibly pathogenic, into the air.

(b) By preventing (as in depressions of the ground) accumulations of sewage—forming putrefactive centres ; and by not allowing in the furrows of the flat-bed system either accumulations of sewage on the one hand or the drying out of putrefied sewage on the other.

(c) We would further say that we feel free to recommend the adoption of the system since, should it be found in the future that surface irrigation cannot be carried on without producing a nuisance, it will be very easy to so arrange at the irrigation field for settling tanks, from which the clarified sewage can be distributed in the same manner as now contemplated, or by shallow sub-soil field tile drainage. The sludge from the tanks could then be readily carted away and ploughed under at once.

4. Regarding the important question of whether the effluent from the sub-soil drains can with safety be turned into Carling's creek, your committee would remark that the water from such sewage farms is found both in England, France and Germany to be practically pure water, Durand Claye stating before the Paris Commission that there were not more than sixty-seven bacteria per cubic centimetre in that from the Gennevilliers farm, and that it contained fewer than the water of the River Vanne, supplying Paris. A member of your committee has found in well water ninety-seven bacteria per cubic centimetre.

The published report of the Provincial Board for 1887, under the heading "Public Water Supplies," points out most of the known facts on the bacteriology of the soil, from which it is apparent that the soil a few feet below the surface contains few bacteria, the deeper strata not favouring their multiplication through absence both of organic matter and air.

In conclusion your committee would strongly support the proposed scheme.

All of which is respectfully submitted.

J. D. MACDONALD,
H. M. MACKAY,
PETER H. BRYCE,

Members of Committee on Sewerage and Water Supplies.

This scheme, as proposed by Col. Waring, is the same in principle as that adopted at Pullman, Illinois, and described fully by Dr. W. Oldright in the Board's Report for 1887. Its engineering details and methods of subsoil drainage are those which the conditions seem to have indicated. Manifestly, should the management of this farm be carried out with careful attention to details, it will become a model for those towns which have the work of disposal of sewage under consideration. While at Gennevilliers, below Paris, France, at Berlin, in Germany, and other places, these farms have not been instituted primarily from the standpoint of profit, yet there, as at Pullman, they have, in addition to solving the sewage problem, paid a small interest on the capital invested.

Remaining for our consideration is the precipitation method of disposal. Manifestly this scheme appears at the outset cumbrous and expensive, assuming as it does the dealing specially with the daily sewage of cities, in some cases amounting to many millions of gallons.

It has not yet been found possible for the London Metropolitan Commissioners to summon up enough courage to deal with the enormous quantity of London sewage by either the sewage farm or precipitation method. Its main features are, however, the throwing down of the coagulable albuminoid portions of the sewage, after the settling of the heavier solid matters, as refuse of all kinds and sand, which find their way into the sewage by precipitants such as lime, alum, etc.

Where combined systems of sewerage exist, as in the cities and towns of England, this method is of great value, inasmuch as it supplies in the supernatant water drawn off from the precipitation tanks the ammonia and other alkaline salts with the soluble phosphoric acid compounds in such a state that they can rapidly filter through the soil of a sewage farm without creating any nuisance.

The method is annually becoming more generally adopted whereby the precipitate or sludge is compressed into cakes by filter presses such as that made by Messrs. S. H. Johnston & Co., Stratford, England, and so dried thereby that it can be readily transported in blocks for commercial purposes. To illustrate the great advantage of this method, it may be stated that while the precipitated solids form but one-tenth part of the sludge after running into filter presses they form one-half of the contents of the pressed cake. The bulk of the sludge is thus reduced to one-fifth that of the initial sludge. With the perfecting of the mechanism of these presses and their more general use, their price may now be considered to be within the reach of every municipality which needs to adopt them.

From these illustrations it becomes apparent that methods exist, even if costly, whereby the sewage may be safely disposed of apart from that now so generally adopted of pouring it into the neighbouring stream or lake. As already remarked, the great point is for municipalities to decide on that method which leaves its own and other water supplies unpolluted. In the case of Toronto, two consulting engineers, Messrs. Rudolf Hering and Samuel M. Gray from the United States, have been engaged in reviewing the work and propositions which three years ago were submitted by Messrs. McAlpin and Tully for the extension of her public water supply and for disposing of the enormous volume of sewage now poured into the bay. They have practically confirmed the conclusions already arrived at, viz., that it will be perfectly safe, as it is the most economical method, to pour the sewage into the lake near Victoria Park.

The following is quoted from their report :—

" But, with a sewage discharge near Victoria Park, several thousand feet from shore, it is possible to draw the water from the present intake opposite the Island and to allow a distance for dispersion of sewage of about six and one-half miles. The total cost of disposing of it in this way is estimated at \$1,471,048.00, which makes this project nearly half a million dollars less expensive than the other one, and has a further advantage in greatly facilitating an immediate increase of the present supply, as mentioned above.

We have no fear that by the westerly movement of the littoral drift the sludge will be carried far towards the Island, before the bed of the lake will show its entire disappearance. Nor, if the sewage is passed through a strainer, having an inch mesh, do we think that objectionable floating matter will be found stranded along the near shore. The proposed improvement of the eastern entrance to the harbor and the proposed outlet of the river Don at the eastern end of Ashbridge's Bay will aid in dispersing the sewage matter by deflecting or breaking the current when it moves towards the Island.

The intake being in deep water near the bottom where the current is slight, is a further protection, because whatever matter might accidentally have drifted to so great a distance, would most probably be near the surface and not in the more quiet current near the bottom.

As already stated, however, we are willing to admit the possible advisability of clarifying at least some of the sewage in the future, when the city has trebled its present population. Whatever is herein recommended will not interfere with ultimately adding works for this purpose, but will really form a necessary part thereof.

For the above reasons we believe that it is safe to locate the sewage outfall opposite Victoria Park, in thirty feet of water, at least two thousand feet from shore, and being also the most economical project, we believe it to be the proper one for the city to adopt. This outfall was suggested in the city engineer's report of November, 1886."

The reasoning by which these conclusions are arrived at is contained in the following statements :—

" The available localities for a sewage discharge depend upon the points from where the water supply is drawn, which, as we advised above, should be taken from Lake Ontario. The fact of drinking water coming from the same lake into which we discharge sewage, should not necessarily disturb us, any more than breathing the same air into which we continually exhale the discarded gases and other effete matter from our lungs.

The objection to such pollution is mainly one of degree. If we have a high degree of dilution, in the first case with pure water and in the second with pure air, we have yet to discover the slightest evidence that any harm has resulted. The gradual self-purification of polluted water and air by means of oxidation, through the excess oxygen contained in the dilut-

ing medium, is an established fact, and is nature's method of correcting what would otherwise be a serious evil. For our purpose it is a question of degree of dilution, and in both cases we have enough experience to approximately indicate safe limits.

The regular and constant current of rivers enables us to fix this limit with greater exactness than when the sewage is discharged into a large body of water, such as Lake Ontario, in which the currents move in almost any direction or sometimes are quite imperceptible. Still, it is not difficult to reach some conclusions in this case.

If the sewage is discharged into the lake in deep water near the bottom, we are safe in concluding that the *sludge*, i. e. the heavier matter, will very soon settle and no longer be contained in the water a few thousand feet, perhaps a mile, distant. At long intervals dredging can easily and cheaply remove any large accumulation at the outfall. The lighter and fatty ingredients of the sewage and those which are held up by attached bubbles of gas, rise to the surface and are moved along by the current, thus constituting the chief danger. Both in rising and subsequently in their horizontal movement, they are separated and dispersed along the cycloidal paths travelled by particles of flowing water. One cubic foot of sewage discharged into a current of 100 cubic feet of water per second, would gradually become diffused throughout this quantity and diluted a hundred times. While becoming more and more exposed to purification by the oxygen in the water, the deleterious matter would gradually be reduced to a point beyond detection. The higher temperature of sewage as compared with lake water, will not, we think, be an important factor in dispersion, because the flow for several thousand feet in a submerged steel pipe will tend to equalize the temperature and materially reduce that of the sewage before its discharge.

Nothing but actual tests, however, will tell us how rapidly diffusion and oxidation take place and therefore how far apart we should have the sewage outfall and water intake. The season was unfavorable to make many experiments in this direction. But from general experience gained upon the lakes and elsewhere, together with the results of a few recent local observations, we believe to be justified in drawing some conclusions."

After the remarkable conclusions so readily arrived at in the preceding quotation we find the following :—

"The float observations made in the lakes do not indicate any marked difference in the frequency of the currents in one direction or in the other. Nor is it of much value for our purpose to know this difference. The fact that they move both east and west is enough to indicate that the sewage should be discharged sufficiently far away so that the unfavorable current, if only occurring once a year, will not cause the water near the intake for the city's supply to be polluted."

The last statement appears to us the only essential in the whole question, and we do not feel that we have sufficient data given anywhere which would lead us to suppose the danger therein stated is to be obviated by the proposed scheme.

On the assumption made in the report that the currents may reach a velocity of 100 feet per minute, we would have sewage moving at times at the rate of one mile an hour at least, or in six or seven it could be borne to the mouth of the water-pipe. Remembering that the scheme proposes to deal with 40,000,000 imperial gallons of daily discharge from a population of 500,000, the question which presents itself is this. With an easterly wind causing a movement of water toward the in-take pipe, can we suppose that this amount of sewage, which, according to the same gentleman, would require 5,000 acres or nearly three miles square of land to remove from it the impurities by filtration through the soil, would disappear and leave no vestige of its presence during an onward movement of six or seven hours? In the quotation made we have the statement that the objection to such pollution is mainly one of *degree*. It can hardly have been intended that we are to believe that oxidation of the sewage during these few hours can have taken place in the cold lake water to such an extent as to make it an argument in favor of the scheme, and it may fairly be said that without more scientific reasons than have been given in the report, the *degree* of the "objection to such pollution" is such as to prevent any such scheme from meeting with general approval.

I have the honor to be,

Your obedient servant,

PETER H. BRYCE,

Secretary.

REPORT OF THE COMMITTEE ON SCHOOL HYGIENE.

To the Chairman and Members of the Provincial Board of Health :

GENTLEMEN,—Your Committee beg leave to report upon the following memorial which has been referred to this board by “the Honorable the Minister of Education,” in pursuance of a recommendation from “the Committee on Sanitary Provisions for Public Schools of the Conference of Public School Inspectors.”

The memorial reads as follows, viz.—

To the Honourable Minister of Education :

SIR.—Your Committee on sanitary provisions for public schools recommend, t'at there be provided a circular for distribution to School Boards, urging upon them the special necessity of complying with Regulations, Nos. 1, 2, and 3, of the Public Schools Act of 1887. Your Committee further recommend, that the said circular should give very definite directions upon the following points ;—

1. The construction and arrangement of privies should receive especially careful attention.
2. The situation, lighting, heating and ventilation of new school houses.
3. The means of providing efficient heating and ventilation in existing school houses.

(Signed.) WILMOT M. NICHOLS.

Owing to the unsatisfactory means provided for the thorough ventilation of a large number of school houses, in rural sections—in addition to the very imperfect construction of the out-houses erected on school sites—your committee believe that many preventable diseases now so prevalent—especially typhoid fever and diphtheria can, by the proper observance of sanitary laws, be almost “stamped out,” and recommend, that circulars should be prepared by the Provincial Board of Health for distribution among school trustees and municipal officers, with the object of pointing out to them the dangers to which both pupils and teachers are exposed from the causes mentioned, and the imperative need existing for their removal.

(Signed), WILMOT M. NICHOLS,
Chairman of Committee on School Sanitation.

There are two very common causes of disease referred to in the memorial, viz :—

1. Pollution of soil ; and
2. Insufficient ventilation.

Wherever one or both of these conditions exist disease germs find a congenial soil upon which to live and rapidly increase.

The extraordinary vitality of typhoid and diphtheria germs, for a long period after they have passed out of the body, under the influence of conditions favorable to their growth and reproduction, has been repeatedly proved by innumerable facts in the history of these diseases. The conditions requisite for their reproduction are decomposing animal matter, human excreta, warmth and moisture. Hence, ill-ventilated, filthy schoolrooms, cesspools, privy-pits, often containing the accumulations of years, badly constructed drains and damp unventilated cellars should be strictly prohibited, in connection with our school accommodation.

Typhoid fever while sometimes communicated by the air, is peculiarly liable to be transmitted by means of water. Great care should therefore be taken by trustees to secure for their schools a water supply which shall be thoroughly free from all pollution of the soil, more particularly that arising from the specific poison which is contained in the discharges from the bowels of patients suffering with this disease.

Diphtheria is most commonly disseminated by means of the atmosphere. The special contagion of this disease remains virulent for a great length of time, and may be carried a considerable distance on the person or clothing without losing its activity

The attendance of pupils coming from houses where diphtheria is known to prevail should be strictly prohibited, until they are provided with a proper medical certificate stating that they are no longer capable of communicating the disease to others.

Dirty floors and badly ventilated school-rooms contribute to the spread of consumption, more especially where the expectoration of persons afflicted with this disease is allowed to remain and become dry on the floors. Under these circumstances (as pointed out in the report presented by Dr. Cassidy, at the Lindsay convention, August 14th, 1888,) the bacilli of tuberculosis rise with the dust, and enter the respiratory passages to be introduced into the circulation. Thus, this dread disease, which heads the list in the rate of mortality in Ontario, causing about 12 per cent. of our annual death-rate, may be propagated in the air of the school-room.

In proof of this we may repeat the statement contained in our health bulletin for June and July. The eminent Prof. Esmarch, of Germany, as have others, has recently found that by using a sponge dipped in glycerine, which has been previously cleansed and sterilized, and then wiping down the walls of rooms, as in hospitals, etc., he obtained colonies of bacteria varying from 6,391 to 17 colonies to the 25 square centimetres. Their number varied with the character of the wall covering, whether paint, varnish, paper, etc., and upon the position and character of the particular room. There were fewer in the upper than in the lower parts of the room,

Prof. Carnelley has shewn further, that stamping for a moment on the floor of a room, such as a school-room, raises into the air almost innumerable microbes. Winds act similarly in increasing the number of microbes in the air.

In view of all the circumstances, and the imperative necessity of immediate action your committee would recommend that the following instructions be issued from the Education Department:—

1. School Trustees shall, in every case, avail themselves of the services of the Medical Health Officer, in accordance with section 113—schedule A—sub-section 1 of the Public Health Act of Ontario—constituting this officer Medical Inspector of Schools, and Advisory Officer in School Hygiene.

CLOSETS, ETC.

2. All privy-pits shall be cleaned out, disinfected and filled in with fresh clean earth.

3. In towns provided with sewers, properly constructed water closets and urinals shall be provided, preference being given to closets which are automatic in the action, and supplied with a good system of flushing.

4. The Smead and Dowd system of dry air closets in connection with their system of heating and ventilation, has been found to work well in practice, and is well worthy of adoption.

5. When the above mentioned systems are not used, earth closets shall be constructed.

6. The construction of earth closets may be varied to suit circumstances, but the following general principles must be observed, viz.—

(a) An apartment provided with a suitable seat, and a pail or water-tight box for excreta—the box to have handles for convenience of handling. In large schools, however, a shallow water-tight brick vault may be used instead of the excrement pail or box, precautions being taken to have earth, ashes or sawdust scattered over the excreta every day; the vault should be emptied at frequent intervals under the direction of the trustees.

(b) Behind the first apartment is a second one (see diagram) in which is placed a dry earth receptacle—a rectangular shaped box is preferable; a barrel or half barrel may serve the purpose however.

(c) The first mentioned apartment to have a hinged opening or removable board behind the seat, so constructed as to admit of easy access, for the purpose of throwing dry earth, coal, or wood ashes, or sawdust on the excreta, with a small scoop or shovel.

(d) Ventilating pipes should be constructed in connection with these apartments, as also in connection with the brick vault.

The following diagram represents a single apartment, with its adjoining dry earth enclosure. When required any number of these may be constructed together.

(e) (a) seat ; (b) excrement-box ; (c) hinged opening, raised in order to throw in dry earth ; (d) dry earth receptacle ; (e-e) ventilating pipes.

(f) For deodorizing purposes moulds or loams are preferable ; pure sand is valueless clay is not easily pulverized, and is retentive of moisture.

(g) Dry wood or coal ashes or sawdust may be used, if loamy soil is not easily procurable.

(h) The earth should be properly prepared. For this purpose suitable sheds for drying and storing it should be constructed on the school grounds. Provision should also be made for screening the earth in order to remove all lumps.

(j) The earth or ashes, with the excreta, should, after use in the closets, be disposed of under direction of the Medical Health Officer or Local Board of Health at the expense of the School Board.

(k) The caretaker, or some person appointed for the purpose by the Trustees, should throw dry earth, ashes or sawdust in the excrement-boxes or vault every evening after school hours, and also every morning before eight o'clock. The earth should be evenly applied so as to cover all excrement exposed. This work to be done under the direction of the Trustees, and subject to the approval of the Medical Health Officer.

(l) Where there is no Medical Health Officer, the Local Board of Health or their officers may have access to the earth closets for the purpose of inspection.

(m) If properly managed in many localities the contents of the excrement-boxes may be disposed of as garden or field manure, no offensive odour accompanying their removal and use in this way.

THE DRINKING WATER.

7. The drinking water used by school children should be analysed from time to time, and if found impure its use should be immediately discontinued.

CLEANSING OF FLOORS, WALLS, SEATS, ETC.

8. We would especially urge scrubbing of the floors at least once a week. Sweeping should always be done at night, the floors having been first sprinkled ; and the seats and desks should be dusted with a damp cloth on the following morning.

The desks, seats and walls should be kept scrupulously clean, the latter being brushed down with a moist brush or cloth weekly.

In addition to this, we recommend that all cracks in the floors should be filled up with putty. The floors should also be soaked with boiling oil several times until they become hardened. Hardwood floors are preferable.

SITUATION, LIGHTING, HEATING AND VENTILATION.

9. *School Site.*—The school site should be carefully selected on ground dry, porous and easily drained. When the school building is constructed on a clay soil, tile drains should be made in order to secure a dry condition of the basement. No water should be allowed to accumulate or stand under the floors, and a free circulation of air should be constantly admitted under the floors. In buildings of two or more storeys air should freely circulate under each floor. The site should be selected with regard to the lighting

and heating of the school. A building facing the south or south-east has an advantage in this climate as to heating and lighting :—1st. As to heating ; because the prevailing winds in winter blow from west and north-west, and the south-east front is consequently preferable. 2nd. As to lighting ; because the light entering from either the north or south side is most uniform during the day.

LIGHTING.

10. School rooms should be lighted by windows placed on the left side of the pupils. They may be lighted from two sides, viz., from the left and behind the pupils. Light should never be admitted in front of the pupils, nor from two opposite sides. The windows should reach from within four feet of the floor very nearly to the ceiling. The ceiling should be about twelve feet high. The windows should be about three feet wide, and the size of the windows collectively should be about one-eighth of the floor space. They should be hung with pulleys so as to be easily lowered or raised from the bottom. The admission of light should be regulated by suitable blinds.

HEATING AND VENTILATION.

11. During the cold season all schools in Ontario should be heated by steam, hot water or air warmed by a furnace.

12. A regulated system of introducing pure air into the school room and withdrawing foul air should in all cases be secured.

13. The Smead & Dowd system of heating and ventilating is the best, as far as we know, at present in use for school rooms, both in summer and winter.

14. In existing school buildings which have been constructed without a regulated system of heating and ventilation, the following methods may be adopted :—

(a) An excavation should be made under the building for placing a furnace, and provided with a suitable fresh air inlet.

(b) Outlets for the removal of foul air should be provided in each school room, preference being given to those which are so heated as to create a strong upward draught.

(c) These outlets should, in every instance, be carried up to the outer air, and should be made smooth internally by being constructed or lined with galvanized iron, zinc, tin, plaster or tile pipe, and provided with weather caps.

(d) In warm weather, when fires are not required for heating purposes, the outlets should be heated by a small stove, coal oil lamp, or other suitable contrivance, in order to create an upward current.

15. Any system of heating and ventilation which does not provide for an abundant ingress of pure air and a complete escape of foul air, is useless for purposes of ventilation.

16. If over crowding is permitted in school rooms they cannot be properly ventilated.

(Sgd.) H. P. YEOMANS, M. D.
J. J. CASSIDY, M. D.

REPORT OF DR. COVERTON ON QUARANTINE.

To the Members of the Provincial Board of Health.

GENTLEMEN.—A few prefatory remarks on the general work of our Board since its first establishment, six years ago, will not, I believe, be viewed by you as unconnected with the special task assigned to me of reporting on the quarantine regulations and provisions now in existence at the station at Grosse Île. Briefly, then, the object of the Board at the period of its inauguration and at present date has been to obtain a knowledge of how far the Municipal Councils of our Province had provided for the general sanitation of the inhabitants under their jurisdiction, and more particularly as to the means employed for due inspection and enquiries into the vaccination of children and re-vaccination of adults, when epidemics of smallpox were threatened; of the general precautions taken for due preparedness against possible advent of cholera; of investigations into sources of typhoid; into problems of causes of diphtheria and of the spread of this disease, as also of typhoid and scarlatina by impurities in the milk supply, or contamination of soil or drinking water; of the modes employed against infection by agency of reliable germicides; of the nature of the system of drainage, general and local, about the house and outbuildings, and of sewerage and disposal of sewage.

Needless to say that the work involved has been no light labour; it has been summarised in monthly reports, and more extensively detailed in our five annual reports, in which, year by year, the methods employed for educating the masses of the people have been described and opportunity afforded the readers of the same of judging how far the work has progressed.

There is no want of conviction on the part of members of this Board that a vast deal yet remains to be accomplished, but we trust we have reason for the belief that at least something has been done in the way of protecting the inhabitants of our Province from avoidable causes of sickness, as also in arousing Municipal Councils to a sense of the absolute necessity for granting far more advanced financial assistance for the well-being of the people than usually in the past has been most grudgingly doled out, as also something more nearly approaching adequate remuneration for the Medical Health Officers and Sanitary Inspectors by them employed.

With these few prefatory remarks, I pass on to the report proper on "The Quarantine System as it now exists at Grosse Île." In the report I had the honour of submitting at the last meeting of our Board, I described the well-adapted position of this island for the purpose to which it has been devoted for the last seventy years, the admirable state of efficiency which Dr. Montizambert has, after an occupation of twenty-five years, succeeded in establishing; and, also, to the still further improvements this zealous officer has been reporting to the Dominion Government, as absolutely essential for placing the station in the very first rank for the accomplishment of the work assigned to him, viz., the exclusion of infectious disease so far as it lies within human effort by ocean steamers or sailing ships coming from Great Britain, Continent of Europe, West India Islands, South America or Gulf of Mexico.

In the successive applications for the additional requirements, Dr. Montizambert has placed before the Honourable Mr. Carling, the Minister of Agriculture and of Health, the opinions entertained and expressed at the various International Congresses held at Geneva, September, 1884, at the Hague in 1886, and at Rome (Italy) in January, 1887, by the delegates from the various governments of Europe and North and South America, of the application of dry and moist heat, of sulphurous oxide and bichloride of mercury, as being not only vastly in advance of the efficacy of previously reputed germicides, but also for obviating the naturally great objections to quarantine from the long delay involved, as the term implies, and as a consequence the very heavy loss and interruption to trade from demurrage, all of which would be obviated by the additions sought for, the time occupied in the work diminished to fewer hours than previously days, too often fruitlessly for the object sought after. Two years ago, when cholera was prevailing so extensively in India, Spain and Italy, the danger of the disease being imported to our shores, either directly or through the United States sea ports, was so forcibly impressed on the members of our Board that our Secretary, Dr. Bryce, was requested at the end of June, 1886, to visit the Grosse Île station, and, finding additional enactments urgently required, he prepared an able and exhaustive report of the great national advantages there to be found for the complete isolation of the infected; also, pointed out the additions to be made for bringing this gateway of our Dominion up to a level with modern conception of what should constitute a perfect system of protection.

Last August I also had an opportunity of noticing the same necessity, and the impressions formed during a three weeks' visit I put on record in a report to this Board at its last quarterly meeting, as well as the anxious desire of the Honourable Mr. Carling, that every requirement should be as speedily as possible supplied.

These requirements at Grosse Île—for two years successfully in use by Dr. Holt, of New Orleans—were by that gentleman most lucidly explained and illustrated at the convention of the

American Public Health Association held last November, at Memphis, Tennessee, and are the following: Extension of western wharf to a point that would give a depth of water sufficient at low tide for the largest steamship or sailing vessel requiring disinfection (say thirty-six feet), to be moored alongside of wharf immediately adjoining the quarantine wharf, and near its water edge a heavy framework of piles each twelve inches in diameter, the structure having an ample base, pyramidal in shape, and forty-five feet in height above mean level of the river. On the top of this a circular, iron tank capable of holding eight thousand gallons of mercuric solution. In the tank, near lower edge, three galvanized iron faucets, to each of which is screwed a lead of three-quarter inch rubber hose, further ends of which lie on the wharf and lengthened as may be required to reach any part of the largest vessel during disinfection, all three simultaneously used fore, aft and amidship.

2nd. For safety, when the wharf is sufficiently lengthened, the placing of the apparatus for evolving and supplying the germicidal sulphurous acid gas, with its battery of eighteen furnaces in a building at the end of the wharf, contiguous to the after hold of the ship to be fumigated. In rough weather, as I had an opportunity of witnessing last summer when on board the quarantine steamer, there is great danger of the melted sulphur escaping from the pans and setting the vessel on fire. The apparatus for the dry and moist heat also to be placed in a separate building near end of wharf.

3rd. For boarding ships in all weather, day and night, a very staunch and strong steam launch eighty to one hundred feet long and of breadth proportionate—the present steam launch, the *Hygeia*, being unsafe for the purpose in rough weather, the vessels to be examined lying out opposite Quarantine Station at a distance of at least three miles.

The approximate cost of these needed changes is, I believe, estimated at \$120,000, which at first sight may be viewed as a very large sought-for grant, but we can, in the light of former knowledge of the cost of epidemics, reply that it would be only fractional compared with that which would ensue from the combatting of such a wide and long-continued one as the Province of Quebec was afflicted with three years ago, directly traceable to infection brought into our Dominion from Europe; and that, inasmuch as we have every reason for believing that during the present year there will be a larger emigration from Europe than ever before known, the members of our Board considered the question should be viewed far more from a sanitary than from a financial point, as with truth it may be said that there is no greater economy than the saving of human life and the protection of the inhabitants of our Dominion from the personal, social and financial embarrassments that would necessarily follow from an epidemic of either cholera, smallpox or other infectious disease, which, by the additional means asked for, might by the strict segregation of the infected and by the complete purification of baggage, cargo and ship furniture have been prevented.

As this question of cost might prove an obstacle to Dr. Montizambert's obtaining the aforesaid requirements for his station, it was suggested at our last meeting that Dr. Bryce should communicate with the Provincial Board of Quebec, and request that a deputation from their members should be appointed to meet with one of ours at Ottawa and solicit an interview with Sir John Macdonald. This was agreed to. The Chairman, Dr. Lachapelle, the Hon. Dr. Pacquet and Dr. McDonnell, the delegates from the Province of Quebec, and Dr. Rae, Chairman, Dr. Bryce, secretary, and the subscriber, from the Provincial Board of Ontario. On Tuesday evening we had the pleasure of meeting the Hon. Mr. Carling and two of our city members, Messrs. Denison and Small, and it was then arranged that we should ascertain whether we could some time the following day be received by Sir John. We were fortunate in finding him disengaged shortly after, and of being informed in reply to our request for an interview on the subject for which the deputation from the two Provincial Boards had met in Ottawa, that he thought he would be at liberty the next afternoon at four, but that after the morning Council meeting he could give a positive answer. The next day we received a note from him to the effect that the arrangement for 4 p.m. would stand, and at that hour the Hon. Mr. Carling introduced the members of the deputation, there also being present Drs. Bergin and Fissette, members of the Dominion Parliament, and Dr. Montizambert, Quarantine Officer at Grosse Ile.

APPENDIX

CONTAINING THE

ANNUAL REPORTS OF LOCAL BOARDS

IN THE VARIOUS

MUNICIPALITIES OF ONTARIO.

ANNUAL REPORTS OF LOCAL BOARDS OF HEALTH.

CITIES.

BELLEVILLE.

Medical Health Officer's Report.

As Medical Health Officer for the City of Belleville, I have the honour to submit my report for the year 1888 :—

At the request of the Board I had orders issued for the cleansing of yards and emptying and disinfecting of water-closets. The number of yards cleaned by personal order of the inspector was 250, hog-pens removed 9, water-closets emptied and disinfected 275, cess-pools closed and disinfected 6, closets removed, being too near dwellings, 7, wells cleaned 17, wells closed by order of Health Officer 4, water-closets changed to dry earth 10, dead animals buried 37. The Inspector made a house-to-house inspection of the city and reported to me its state, and when I considered it necessary I issued the regular notices (in all about ninety-six cases), which the Inspector saw were enforced.

I have during the year granted thirty-nine licenses to parties to sell milk in the city, making each seller sign an agreement to report to me any case of infectious or contagious disease in either their families or places of business, failure to so report resulting in forfeiture of license to sell. I would strongly recommend a license fee for selling milk to be imposed on all milk vendors, commencing on January 1st, 1889, when licenses must be renewed. I have examined the milk of a number of the vendors and found it fairly up to standard quality. In one instance the milk was adulterated with water to a large extent, and I warned the party. I again examined the milk some time after and found it all right.

The mortality from January 1st up to November 1st of the present year was 142.

I have had twenty-one cases of fever reported to me, the medical profession being divided as to its character, some contending it was malarial, while others said it was typhoid. The total number of deaths recorded from the disease was four. I have had one case of diphtheria and one case of scarlet fever reported to me, both of a mild character. We have reason to be thankful for the position our city holds in the total absence of those dread scourges, namely, diphtheria and scarlet fever, this being the third year that there has not been a death from either of those diseases recorded in either of the cemeteries.

I would again draw the attention of the City Council to the absolute necessity of drainage, and more especially that so many of the citizens are taking water from the water works. The greater part of the preventable diseases are caused in my opinion by want of a proper system of drainage, and bad water from the wells among the thickly populated places. The wells in dry seasons such as this and last year, were extremely low. The slops and other refuse from the houses, owing to absence of sewers, are thrown into the yards, and in some instances the water-closets are only a few feet from the wells. A shower of rain comes on and all the decayed animal and vegetable matter and filth with which the ground is saturated, find their way into the wells for the production of fever and other diseases.

A great want is in not having a proper system of scavenging for the city. I think the Council should license one or more scavengers to do the work.

Complaints appeared in the public press about the state of the river this summer ; but what can the Board do in the matter, when both the county and city buildings drain into the river in direct violation of not only the Public Health Act, but the city's by-laws ?

When attempting to prosecute private individuals, we were met with the sneer that we should make the city carry out its own by-laws before prosecuting private individuals for doing what the city had done for years.

I have again drawn the attention of the Provincial Board of Health to the sewage of the Deaf and Dumb Institute, but nothing has been done so far. It is now over a year since the matter was brought before the Provincial Board, and in a case of such vital importance to the well-being and health of the inhabitants of this city, it should have been in my opinion attended to before this. I may say that I stated in a communication to the Board, that should our water system become contaminated with sewage from that source, the city would hold the Board responsible. I think it would be well for the Council to take some action in the matter at once.

R. TRACY, M.D.,
Medical Health Officer.

BRANTFORD.

Medical Health Officer's Report.

I have the honour to present the following Report for the City of Brantford for the year ending October 31st, 1888:—

The number of deaths within the city limits during the year was 220, being at the rate of $16\frac{1}{4}$ per thousand in an estimated population of 13,500. The death-rate in 1887 was the same. The Brantford death-rate appears to be a little below the average rate of Ontario cities and towns.

Of the 220 deaths in this city, 96 were of children under five years of age, and 31 of persons over seventy years.

The deaths from the principal zymotic diseases are as follows:—From typhoid fever thirteen as compared with eight deaths last year; diphtheria 8 as compared with 19 last year; croup 2 as compared with 3 last year; scarlet fever 2 as compared with 9 last year; measles 1 as compared with none last year; whooping cough 5 as compared with 1 last year, and from cholera infantum and diarrhoeal affections 26 for 23 last year.

The eight deaths from diphtheria represent one in every 1,680 of the population. The average in the thirteen Ontario cities was one in every 920.

Scarlet fever has prevailed to some extent; fifty-nine cases were reported to the Board of Health, and two deaths occurred.

Every possible precaution has been taken to prevent the extension of scarlet fever, diphtheria, etc., in the schools, by rigidly excluding all children coming from houses where the diseases were known to exist.

The Board has supplied the schools with blank forms for notification of disease, and during the last six months fifty-seven notices have been received from the East Ward School, twenty-five from the North Ward School, sixteen from the Central School, four from the King's Ward School, and one from the Separate School. It is, therefore, obvious that while this important duty has been faithfully performed in some of the schools, in others it has been much neglected.

During the half year 137 notices were sent to the free library, requesting that books be not delivered to persons from infected houses, and that any books returned from such houses be withdrawn from circulation until they shall have been examined by the Medical Health Officer. Under this regulation fifty-six volumes were withdrawn from circulation. Of these, twenty-seven volumes were restored to circulation, it being clear from the known facts that they were not infected, and twenty-nine volumes were removed to the Health Office. Those of small value and which have been handled by patients with diphtheria and scarlet fever, it is proposed to destroy, others may be returned to the library after disinfection. Fifty-six cases of typhoid fever were admitted into the John H. Stratford Hospital, of whom seven died; a large number of the cases admitted were of great severity, several dying within a few days after admission. Six

deaths occurred outside of the hospital, and it is safe to assume that not less than seventy cases of the disease were treated external to the hospital, showing not less than 126 cases of genuine typhoid fever. This is a large number, and the number of deaths, about one in 1,000, shows a large death-rate from that disease. The causes of this undue mortality from typhoid are not far to seek. Bad water, and the total absence of any kind of sewerage are the obvious causes.

A very large number of wells are badly contaminated ; and repeated examinations have shown that the city water obtained from Wilkes' creek, which serves the purpose of an open drain, is of a better quality than that of a large proportion of the city wells. As the construction of the new water works is now in progress, it may be fairly expected that when these are in operation, and the use of water from bad and doubtful wells is discontinued, the causes of typhoid fever (as well as of much other sickness), will be in a large degree effectually removed.

The other principal cause is the absence of sewerage. The saturation of the soil during twenty-five to fifty years in the older parts of the city, by liquid refuse, has poisoned the ground, and not only defiled the wells but contaminated the air in and about our dwellings. It is much to be feared that typhoid fever, diphtheria, and other zymotic affections, notwithstanding the acquisition of a good water-supply, will not diminish but will rather increase, unless the sewerage question is promptly dealt with.

Besides its general importance there is a special need for sewerage in relation to manufacturing establishments, on which the business of the city so largely depends.

Brantford is exceedingly well situated for establishing sewerage, on the separate system, at a comparatively small cost ; and this work is of such importance in relation to the value of real property in the city, which value must certainly be increased at once far beyond the cost of the works, that aside from the question of health it should receive the warm support of every property holder in the city.

The work done in sanitary inspection during the year has been very large and has been exceedingly well done. The Inspector's books show that 1,207 house-to-house inspections have been made, exclusive of inspections of dairies, slaughter-houses, soap works, etc. So far as the reports show, this is two or three times as great a number, in proportion to population, as have been made in any other city in Ontario. Three hundred and twenty-nine complaints were entered in the complaint book, all of which were dealt with as well as was practicable. Four hundred and fifty privy-pits were emptied during the year. Seventeen prosecutions for various breaches of the Health Act were entered, and convictions were secured in every case, fines being imposed to the amount of \$77.85.

At the February meeting of this Board a resolution was passed directing the total abolition of all remaining privy-pits in the Queen's Ward and the substitution of dry-earth closets, the work to be carried on as rapidly as possible. Three years ago the number of these pits in this ward was nearly 400 ; at the time of the above order there were about 260, and the Inspector reports that only ninety-seven now remain. In every case the pits were cleaned and filled up with fresh earth. As more than 100 new dwellings have been erected, in all of which the dry-earth closets have been adopted, it is estimated that 325 new dry-earth closets have been established during the year. That so much has been accomplished in face of considerable difficulties must be regarded as very satisfactory.

The dry-earth system, which has now come into use to such a considerable extent in this city, has, wherever it has been properly regulated, given good satisfaction. To a certain number, however, it has been by no means satisfactory, although there are very few, if any even of these, who would advocate a return to the old system. The public cannot be expected to be satisfied with this system, or with any system, unless it is well managed.

In those parts of the city where the grounds around dwellings are limited and where sewerage is necessary, on account of the impossibility of otherwise disposing of liquid refuse, water carriage may hereafter be substituted for the dry-earth system, by those who may desire it ; but for those localities where it is applicable, the dry-earth system will still prevail, as when properly managed it is no more disagreeable or troublesome than the water carriage system, and is superior to it in safety and economy.

The chairman referred at the February meeting of this Board to the garbage question, and urged the necessity of the systematic removal of garbage being undertaken as a public work.

In some places this work has been undertaken by the Boards of Health, but the increased expense of a separate service for the work is very considerable, and it can be managed with great efficiency and at much less expense in connection with street cleaning and other city work. The many important and difficult matters the City Council have had in hand this year have caused consideration of this matter to be deferred, but it is one of such necessity that some measure dealing with it should be introduced without further delay.

The milk supply of this city is furnished by twenty-five dairies, nearly all situated in the township. The number of cows reported on July 1st, was 357, and the daily supply 2,277 quarts.

All the dairies were inspected in March by the Sanitary Inspector, in company with Veterinary Surgeon Stewart, with fairly satisfactory results; several of them have been inspected a number of times during the summer and autumn.

Samples from all the dairies have been tested twice, and from several of them three or four times. The results of the earlier tests were to show the milk in the majority of cases poor, comparing unfavourably with samples of whole milk taken personally by the Medical Health Officer and Sanitary Inspector from several creamery herds and private herds in the township. Later tests showed considerable improvement.

It is intended, with the approval of this Board, that the work of inspecting dairies, testing samples, and publishing results shall be continued as frequently as possible, having regard to the labour involved and the limited time at the disposal of your executive officers. Milk forms but a relatively small part of the diet of most persons in ordinary health. For the sick, on the contrary, it is often the main dependence, and especially for fever patients. For the former class the quality of milk is very important, but for the latter class, often living exclusively on a milk diet for many weeks, it is a matter of life and death. For these unfortunate sick it is, therefore, specially imperative that the milk should be as nearly perfect as possible. It should be derived from perfectly healthy cows of good breeds; the cows should be kept scrupulously clean in perfectly clean stables; they should be fed on the most suitable foods of the best quality, and be supplied with pure water.

So far as the John H. Stratford Hospital is concerned, it is gratifying to know that the governors fully realize all this, and that they propose, with that commendable solicitude for the welfare of the patients which they have always shown, shortly to provide that institution with a dairy of its own, being satisfied that that is the only certain way of securing for it a supply of perfect milk.

In concluding this partial report of some of the principal matters which have engaged the attention of the Board of Health during the past year, I wish to mention the especially active interest the Chief of Police, as one of its members, has taken in its work. Owing to his position this has been of great service, enabling us to do many things easily and cheaply which would have otherwise been difficult and expensive to accomplish.

EGERTON GRIFFIN, M.D.,
Medical Health Officer.

GUELPH.

Medical Health Officer's Report.

I have the honour of submitting the following report upon the sanitary condition of the City of Guelph, for the year ending 31st October, 1888, in accordance with the Public Health Act, 1884 :—

No epidemic visited the city during the year. The total number of deaths during the year has been 189. Taking the population of the city at 10,173, according to last

year's assessment returns, it places the death-rate at 18.5 per 1,000; and taking into consideration the large number of people from the rural districts who came to the city to avail themselves of its hospital, this, I consider, is an exceedingly low death-rate, and speaks well for the sanitary condition of the city. Of the infectious diseases, 175 cases of diphtheria were reported at the Health Office, 17 cases of which proved fatal. Of scarlet fever only two cases were reported, and no deaths. The inspection of milk and cow-byres during the year, in accordance with the by-law, has been carried out, and has resulted, from what I can learn, in a marked improvement in the quality of the milk. During the year thirty-one permits to obtain licenses to sell milk have already been given, subject to cancellation for infraction of the by-law.

I regret very much that the by-law for extending the water mains in the city during the past year was defeated, as the wells are so liable to contamination from surface drainage, pollution through the soil from water-closets and other sources, that I am afraid a very large number of the wells in this city are totally unfit for use. During the past summer a great many complaints have been made with regard to the bad smell of the river, between the Eramosa and Allan's Bridges, owing to the water being used by the Electric Light Company causing the banks of the river to be exposed all day to the heat of the sun. The matter was brought to the notice of the Board of Health, and some members expressed their opinion that a great deal of the bad smell from that part of the river was due in a great measure to the filth running from the Alma Block and other places along the river, and the Sanitary Inspector was instructed by the Board to notify all parties running nuisances into the river to stop it at once, and in the event of his instructions not being carried out, to instruct the city solicitor to take action; and the Sanitary Inspector informs me that all the persons whom he notified acted promptly. I also gave instructions to have the river cleaned from rubbish, which had accumulated near Allan's bridge, and no less than twenty-five dead animals were found amongst it. Since the cesspools have been shut off and the river cleaned, no complaints have been made.

I would again call your attention to that part of my last report where I strongly recommended that a system of removing the garbage from the city should be adopted. A scavenger under the instructions of the Sanitary Inspector should be employed and the garbage removed at least twice a week in summer, and once a week in winter, and the whole cremated. During the year the Sanitary Inspector confiscated four loads of beef, three loads of pigs and four baskets of fowls, as being in his opinion unfit for human food.

I have written to the chairman of the Board of Education, requesting him to make it compulsory that all children attending the public schools should show a certificate that they had been vaccinated, and I trust that this will be carried out. All the medical gentlemen in the city have been supplied with blank forms for that purpose.

The Sanitary Inspector reports the following work done during the year, which I consider large :—

| | |
|--|-----|
| Number of yards examined | 272 |
| Number of water closets emptied | 186 |
| Number of yards found in good condition | 184 |
| Number of hog-pens removed | 15 |
| Notices served for dirty yards | 43 |
| Number of old wells cleaned | 3 |
| Analysis of well water | 6 |
| Dead animals buried | 115 |
| Complaints made at Inspector's office | 142 |
| Number of houses placarded for contagious diseases | 177 |

The Sanitary Inspector has performed his duties to my entire satisfaction.

THOMAS A. KEATING, M.D.,
Medical Health Officer,

HAMILTON.

Medical Health Officer's Report.

I have the honour to submit my annual medical report of the sanitary condition of the city for this year, ending on the 31st October.

There were 553 cases of contagious diseases reported by physicians to the Health Department and 64 deaths, a list of which may prove interesting.

| | 1888. | |
|----------------------|--------|---------|
| | Cases. | Deaths. |
| Diphtheria | 163 | 49 |
| Scarlatina | 173 | 3 |
| Typhoid Fever | 127 | 12 |
| Measles | 68 | .. |
| Whooping Cough | 22 | ... |

There are 42 cases less of diphtheria than in 1887; the deaths are, however, 18 in excess. Typhoid fever would appear to be on the increase, but many of the cases reported did not present the usual characteristics of enteric fever. Several premises where this disease was reported from were examined, the conditions found were similar to those mentioned in last year's report. Scarlatina cases number four less than in 1887; a few cases had not been reported. Complaints having been made the delinquents were summoned for neglect to do so, but owing to the conscientious scruples of some of the witnesses in giving evidence, there was no conviction. There was only one case of obstructing the Inspector in performing his duty. The parties implicated were fined by the Police Magistrate.

The rule agreed to by the medical profession not to give certificates of fitness to attend school in cases of contagious disease until one month had elapsed since the last case occurred in the house, is so badly observed that the effect is to propagate disease.

The mortality for the year numbers 729. Taking the population at 44,000, the death-rate is 16.5. The highest mortality occurred in the months of May, July and August, numbering in order, 71, 87 and 74. This statement is confined to deaths occurring within the city limits. A good many burials take place in our cemetery from the Township of Barton, which, of course, are excluded, as we cannot avail ourselves of its population in taking the death-rate. It is almost needless for me to say that the three health officers under my own immediate observation have been diligent and effective in the performance of their several duties. The fewer complaints made this year about the removal of garbage would indicate a better working of the scavenger system.

With reference to the inspection of plumbing, this work received particular attention at the time of the house-to-house inspection made by Inspector Peacock, as the books of inspection will verify. In many instances plumbing and sewer connections were found to be very imperfect; untrapped sinks and leakages were numerous; water closets were in some instances badly located, and the pattern of such kind as permit the escape of sewer-gas. Ventilation was also badly provided for, and the water supply for flushing often so scanty as to be next to useless. All those errors were remedied as far and as quickly as possible. Those defects were apparently due to cheap work, and probably also to inexperienced labour. Cheap work in plumbing and sewer connections is to be deprecated, but extortionate charges should be guarded against. The bad sewer connections which have recently come to light, must have been put in previous to the inspection referred to, and such bad work will turn up from time to time. There is little doubt but that any ordinary inspector will be able to detect flaws enough to be remedied during the next quarter of a century. What seems to me to be particularly necessary is, that in all buildings to be erected the plans of sewer connections and plumbing should receive the written sanction of the Inspector. I would respectfully suggest to your Board—it being your province to see that proper provision is made for carrying out the clauses of the

Health By-law in relation to buildings—that although the appointment does not rest with your Board, it would conduce more to the interests of the city to appoint an assistant inspector of buildings, whose duties would combine the experience of a plumber, a knowledge of the proper connection of sewers with buildings, and of all such matters as pertain to sanitary and other regulations in connection with the inspection of buildings. That such an office should be a department in itself, and distinct from the Health Inspector's office. I have occasionally noticed the want of such a department where records could be kept to meet the requirements of the Health By-law, and I am fully convinced that such an office presided over by your Building Inspector, and an assistant qualified for the position, would prove a convenience and more of a public benefit than the establishment of the office of plumbing inspector alone.

I would also bring before your notice the very inefficient clause of the by-law relating to earth closets and their management, and suggest to your Board the expediency of amending it. The system is both theoretically and practically sound, provided that regulations are made to enable it being properly dealt with.

I beg also to report that according to instructions from your Board, I visited the cities of New York and Boston last June and made enquiries into the system of inspection and methods of testing the quality of milk in both cities. All the information that could be desired was cheerfully given, and I was not even asked for my credentials, which I carried in my pocket.

It would take too much space to enter minutely into every particular connected with it, and I will be as brief as possible. In New York the inspection of milk is extensively carried out. There are eight medical inspectors doing daily duty; each of them is required to examine 200 samples and report weekly. One of them is detailed alternately for morning duty to inspect milk direct from the waggons; the beat for each inspector is arranged at the head office. The Inspector is met at the appointed place by a policeman, whose duty is to stop the waggons as they appear. None of them attempt to evade him. The Inspector takes the sample from the vessel himself and examines the specific gravity with the New York Board of Health Lactometer; he then takes the temperature and corrects the specific gravity at 60° Fahrenheit. All milk which does not register 95° on this Lactometer, and which does not also bear inspection derived from its colour, taste and odor, is confiscated and consigned to the nearest sewer. I saw forty quarts so disposed of one morning. It seemed to me very summary punishment, but the case did not end there, as the driver having the milk in his possession at the time was held responsible, as well as the party to whom the milk was consigned. Both were summoned before the District Court. I did not hear what the result was, but was informed that the fine would not be less than \$50.

In Boston there are three inspectors of milk (not medical men). It is their duty to collect samples and bring them to the office of the city analyst. All samples are there examined with the Fesor Lactoscope, and when found necessary are subjected to a minute analysis. The Lactometer used here gives the specific gravity direct, which is corrected by the temperature at 60° Fahrenheit. Both cities have no jurisdiction outside of their respective limits, so that the person having the milk in possession with intent to sell, is held as the responsible party. I received a lot of literature from both offices on the subject of milk, and also from the State Board of Massachusetts.

I expected to have got further information on the milk question at Portland, that city being in the land of prohibition. On enquiry, however, I was informed that the milk supply was generally good, and seldom required official examination—that there was no extra demand for the supply.

I received also a good deal of information from Mr. McFarlane, Chief Analyst of the Inland Revenue Department at Ottawa, and have followed out the directions of circular No. 2, issued by the Department.

The system of inspection carried out in Boston is more suitable for our Health office than that of New York. The latter, though very efficient, is very expensive, but the people get good value for it.

The three grades of milk arranged by the Dominion Government, I presume, are intended to show to what extent whole milk may vary in quality, and that all percent-

ages of fat above the highest and lowest grades were due to adulteration. Milk showing a percentage of fat over 4.75, would have an undue amount of cream, a form of adulteration that few consumers would object to. If the dealer can sell milk at the lowest Government average, namely, 3.50 per cent. of fat, we want no other standard for our office. If the dealer gives a better grade he will get credit for it.

The percentage of butter fat can be very accurately arrived at by means of the Fesor Lactoscope. Professor Babcock, of Boston, has shown from a series of comparative examinations, that in ordinary samples of fresh milk, (such as we get at the Health Office), it gives the percentage within one-quarter of one per cent. of the correct figure, as shown by chemical analysis. I have invariably allowed more than that in addition to the reading of the lactoscope, so that in nearly all cases the dealer must have been getting more than full value for the quality of the milk than he would get from a chemical analysis. The total amount of solids in milk can also be ascertained by calculation, according to the specific gravity taken at 60° Fahrenheit, and the amount of fat as shown by the lactoscope.

From my own experience, having tested a large number of samples, I am perfectly satisfied that the percentage of fat should not be lower than 3.50; even that admits of higher grades being reduced to that standard, and any dealer who wants a lower standard, in fact wants no standard. Not long since I examined four samples of milk taken from four different cows, which were brought to me *direct* from them by the dealer; none of the samples gave over 3 per cent. of fat. That very day your inspectors brought me four separate samples direct from the same cows, and each of them gave a good 3.75 per cent. This fact will give you an insight as to how the milk trade can be conducted.

It has been remarked that the public health Acts were enacted solely with reference to health. This is in the main correct, but it was never intended to be so construed, nor does the Act read so, that trade should be allowed to conflict with health and have full sway to the injury of the latter. The relation between health and trade is so intimate as regards the milk supply, that you cannot separate them with consistency, and you cannot tell now how many untimely deaths have been caused by the want of a good by-law regulating the sale of wholesome milk. Such a by-law has met with the approbation of your Board, and its ratification by municipal authority is earnestly desired. No honest milk dealer could object to it, and the sooner the dishonest man knows that he has to discontinue the trade, the better for the general public. Poor and rich are equally interested.

I. RYALL, M.D.,
Medical Health Officer.

KINGSTON.

Medical Health Officer's Report.

I have the honour to submit the following report upon the sanitary condition of the city for the year 1888 :—

It gives me much pleasure to state that the sanitary condition of our city has been for the past year very favourable. We have, however, to some extent suffered from diphtheria and typhoid fever; the death-rate has been comparatively small from the latter disease. These affections are attributable principally to defective drainage of houses and the use of bad well water, which I trust may be overcome now that we are obtaining a perfect system of water works, with cheap water rates; and, I trust, added thereto we shall have a filter of the best maker.

Milk.—I regret to report that our Local Board has not as yet taken any definite action in reference to our milk supply. This is one of the necessary sanitary matters which requires to be looked into, milk being the chief nutriment for invalids and infants. Other cities have taken necessary action in dealing very definitely therewith, considering it of paramount importance.

Slaughter Houses.—The Sanitary Inspector and myself inspected all the slaughter houses both in and out of the city, according to the requirements of the Statute, and found them most generally favourable.

Sewers.—Now that the council is making such rapid progress in the completion of the main drains to the outermost parts of our city, would it not be well to take into consideration the building of one grand trunk sewer, and thus convey all the filth that may be emptied therein to one common port or receptacle, to be then carted away unto the land to enrich the soil and prevent the contamination of our water front?

Dry Earth Closets.—During the past year the number of these receptacles has greatly increased, and with a little closer attention on the part of the city scavenger (who is not sufficiently remunerated), thereby removing the cause of complaint, we might be enabled to convince many, whose premises are so situated as not to admit of a privy vault, to enlist them in the scheme, which is far ahead of the vault system when properly constructed and attended to. In attending to the details of the many complaints laid before the sanitary inspector and myself, we must return thanks to the chief and police force for the very efficient and satisfactory manner in which they have, upon all occasions, assisted in the proper carrying out of the law.

Sanitary Inspector's Report.—During the year the sanitary inspector issued 531 permits to open and clean out privy pits, from which 5,045 barrels (of 40 gals. each) of night soil were removed and deposited upon the nuisance ground; 163 dead animals were removed from public streets, etc.; 468 notices have been served on parties to abate nuisances, of which 291 were for filthy privy-pits and 177 for dirty yards and cellars.

The following table will show the number of cases of contagious diseases reported, and the total number of deaths for the year :—

| | Diphtheria. | Scarlet Fever. | Typhoid Fever. | Typhoid Malarial. | Measles. |
|-----------------------|-------------|----------------|----------------|-------------------|----------|
| Number of cases | 35 | 6 | 34 | 9 | 12 |
| Number of deaths.. .. | 9 | ..... | 5 | ..... | ..... |

In closing this report, I hope that the Local Board of Health will meet more regularly in future, and thus give its moral support to its officers in the carrying out of all sanitary measures.

S. H. FEE, M.D.,
Medical Health Officer.

LONDON.

Medical Health Officer's Report.

I have the honour to present the following sanitary report of the city of London for the year ending November 15th, 1888 :—

The health of the city during the year has been exceptionally good. There were 438 deaths, as compared with 455 last year. Estimating the population at 27,000, places the death-rate at a fraction over 16 in the 1,000, as compared with 17.16 last year. Comparing this with the death-rate of the twenty-six cities making mortuary returns to the Dominion Government, it is found that these cities and towns had an average death-rate

for the year of 23 in the 1,000. The average death-rate in seven Quebec cities was 31 in the 1,000, and the average in 13 cities in Ontario was 17. Of the 438 deaths in the city this year, 181, or over two-fifths, were under five years of age. Thirty-six reached the allotted three score and ten. Eleven attained the age of eighty, six of eighty-five, one of ninety-two, two of ninety-three and one of ninety-four. The largest number of deaths occurred in December and January, which had 51 and 44 respectively. June, which is invariably the healthiest month, had only 24. The deaths from zymotic and preventable diseases were as follows: Of diphtheria, there were reported 53 cases, six being sent to the city hospital, and 15 deaths. Of typhoid fever, there were 18 cases reported, 19 sent to the hospital, making 35, and 8 deaths. Thirteen cases of scarlet fever were reported, and 1 death. Consumption carried off the large number of 44, and cancer is credited with 15.

Some provision should be made for extending the trunk sewers so far into the river that their mouths will always be under water. A few lengths of 18 or 24-inch iron sewer pipes continued from the end of the sewer would answer the purpose well.

Although smallpox prevailed during the summer in Buffalo, Detroit and Sarnia, and to some extent in Toronto, it fortunately did not reach London. Orders were issued by the Assistant-Superintendent, Mr. Larmour, to the railway officials at the Bridge, Fort Erie, Windsor and Sarnia, to keep a careful watch and prevent, as far as possible, suspected persons entering from the east or west by trains.

The river should always be kept at the same depth. When this is not done, every time the water is lowered the alluvium deposited along its banks is exposed to the heat and air, creating malaria. Keeping the river always at the same depth should not interfere with the efficient working of the water-works machinery, for, as the water at the drain is lowered, the force exerted against the two turbine wheels is proportionally less, and more water is required to work the engines up to the same power—a useless waste of water.

The river is thus lowered five or six inches. When the banks are steep this matters little, but when the water is shallow, which is the case from Kensington Bridge to the Cove, this fall of a few inches means the periodical exposure of hundreds of square yards of residuary deposit to the action of the air and sun.

The need of a sanitary inspector of house plumbing is becoming more and more a necessity in the interests of the public health. Much of the house plumbing done in the city is of the worst description. This is not so much the fault of the plumber as of those who build houses to let, and then have the plumbing done as cheaply as possible, without any regard for the safety of those who will occupy them. Some of the house plumbing done in the city is so bad that a more effectual means of giving the inmates typhoid fever could not be devised. Toronto and some other cities of the Dominion have taken steps to remedy this evil, by appointing experienced sanitary plumbers as inspectors, whose duties will be to exercise a wholesome supervision over cheap slipshod plumbing.

Milk Supply.—Ninety dairies have been inspected, and 147 analyses of milk made since 1st of January. Fifteen of these samples were taken from fifteen herds in my presence, the cows being milked out, the whole milk well mixed, and a sample taken. The quality of milk being estimated by the percentage of butter fat it contains, the other solids, such as albuminoids, milk, sugar and ash, are not given in this report. Of these fifteen samples of whole milks, the percentage of butter fat ranged from 2.15 to 2.12, only one sample, however, being below 3.17; and the average percentage of butter fat in the whole fifteen samples was 3.73. Of 162 samples of whole milks taken from herds from Halifax to Toronto last year by Mr T. McFarlane, Chief Analyst of the Inland Revenue Department, and analyzed by him, the total average of butter fat in the whole 162 samples was 3.86 per cent., and he, therefore, recommends that, in case the Government establish a standard for the Dominion, it be not less than 3.50 per cent. Although the quality of the milk sold in this city has greatly improved in the last six months, and no doubt will continue to improve, still, this standard, for the present at least, appears to be too high; and in the event of this Board establishing a standard for the city, I would recommend that it be not less than 3.25 per cent. of butter

fat. The by-law requiring the inspector to have all milk wagons duly numbered and the owner's name has not been complied with, except in a few instances, and gives rise to trouble and confusion.

T. V. HUTCHINSON, M.D.,
Medical Health Officer.

OTTAWA.

Medical Health Officer's Report.

In laying before you this my annual report for the year ending on October 31st, 1888, I am pleased to record the fact that notwithstanding the inauspicious outlook at the beginning of the period comprised in this report, the mortality for the past twelve months is very little in excess of that of the previous year. One of the reasons of this excess has been an epidemic of typhoid fever, such as Ottawa has never before experienced. This disease, a few cases of which developed earlier in the summer months than usual, suddenly invaded the whole community in the second week in November last; though mild in type in the large majority of cases, the extensive prevalence of the disease naturally caused much anxiety, and a great deal of speculation as to the evil influences which had been productive of such deplorable results. Fully conscious of the gravity of the situation, your board deemed it desirable to demand the assistance of the Provincial Health authorities to investigate and help us, not only to get over our present difficulties, but also advise as to the measures to be adopted to prevent a repetition of the same.

The investigation through events unavoidable was delayed, although this request made in the first week of December last, and as a consequence the investigation did not then prove as satisfactory as if made earlier in the season. However, all was done under existing circumstances that could be done to throw light on a question surrounded with so many difficulties as the causation of this epidemic; and the conclusions reached as a result of the labour of this commission, as reported to your Board, are evidently in support of the following views:—

That whatever part may be attributed to general influences beyond the control of health authorities, it being a recognized fact that protracted droughts, and the evil effects of the unusual condition of things created thereby, pre-dispose to, and are often followed by, typhoid fever, there were reasonable grounds to suspect that our water was an active agent in the distribution of this disease in the epidemic of last fall. In support of this view may be given the following reasons:—

1st. The admitted fact, by all those whose opinions on such matters are worth having, that in the history of all such epidemics, in eighty-five cases out of a hundred, water is the medium through which the disease is spread, hence the saying—pure water, no typhoid.

2nd. The suddenness of the onset of the disease in last fall's epidemic. Typhoid, which could scarcely have been said to have been more prevalent than usual at that season of the year up to the second week in November, suddenly, within the space of ten days, overspreading the whole city.

3rd. The extent to which the disease prevailed, there having been about 1,500 cases in the city and surrounding suburbs. There are other reasons which will be cited hereafter in this report, when on the subject of our water supply. It is pointed out, also, on the other hand, that want of drainage, or improperly made private drains, or defective plumbing and modern conveniences within the dwelling houses, are all pre-disposing to, and, to a certain extent, factors in, the development of such diseases. That in a number of instances during the epidemic of last fall, such evil influences were at work is readily admitted as not incompatible with our present state of knowledge, nor yet misrepresenting the condition of many houses in our city.

To what extent typhoid fever contributed to increase the death-roll of 1888, will appear in the mortuary returns for this year, and from a comparative table of deaths from the same cause for the four previous years. Another cause of this increased mortality has been the prevalence of diphtheria throughout the year. This disease, in the large majority of cases, originates from the evil effects of bad drainage and plumbing, though its chief work of propagation is by personal infection, against which, proper isolation is the only reliable means of safety. Apart from these, few other diseases looked upon as preventable, prevailed to any extent during the year, with the exception, perhaps, of cholera infantum, and other diarrhœal affections among infants, chiefly during the month of July last. These, though to a certain extent due to what is commonly called malaria and other atmospheric influences, in my opinion, are largely the result of gross ignorance or reckless negligence on the part of parents to care for their offspring during the first two or three years of their existence.

Hospitals and Isolation of Contagious Diseases.—The hospitals for the isolation and care of contagious diseases have been maintained throughout the year on an efficient footing; and the requirements of the law as regards the notification of the existence of any such cases, their isolation and other precautionary measures essential to the public welfare, are now better understood, and after much vexatious battling against prejudice and stubborn opposition, are more readily complied with. The legal prosecutions instituted to enforce the law in such cases, should convince the public of the sincerity of our purpose, whilst the results obtained should inspire confidence in the measures advocated. For I may safely say, that it is due to the constant vigilance and prompt action of this department as regards such cases, that this city, during the last six months, was not over-run by an epidemic of diphtheria twenty-fold more terrible in its fatality than the epidemic of last fall.

Our Water Supply.—The purity of our water which, up to last fall, had never been questioned, then became doubtful, for the reasons above given in connection with the causation of the disease then prevailing. Another reason throwing some doubt on the purity of our water, and tending also to connect it with the cause of last fall's epidemic, were the characteristics of the fever as relates to its fatality; the death-rate having scarcely reached three per cent. of the total number of cases.

This, it is contended, points to a contamination of our water with vegetable rather than with animal organic matter; a fact which seems also pretty clearly demonstrated by the different analyses to which it was subjected.

It is evident, at all events, that so far as it relates to the causation of specific diseases, the quality of the pollution is the essential knowledge sought, and not the quantity; that the chemical analysis of water will not determine the presence or absence therein of specific germs, whilst the different conclusions reached by analytical experts in the analysis of the same water, are calculated to throw much doubt on the reliability of such processes or methods to determine the wholesomeness or unwholesomeness of water. Then another circumstance, which, even to the casual observer, is not calculated to impress one with the belief that our water is above suspicion, are the surroundings of the inlet of our water supply. However, this important question is still being investigated, and no doubt that when convinced of their necessity, and satisfied as to the best means to be adopted, nothing will be left undone to effect the needful ameliorations to secure purity in this necessary of life.

Our Schools.—It is a matter for public congratulation to note the progress made in some of the schools of this city during last year as to their mode of heating, ventilation and closet accommodation. Not only is this noticeable in the newly erected school houses, but in others also, where, regardless of expense, the requirements of hygiene have been complied with in this respect. Others which have not yet reached such a standard of hygienic perfection, it is to be hoped will soon emulate this praiseworthy example, and do away with the defective systems made to do service up to the present.

Scavenging.—The removal from the household of waste matter, such as kitchen refuse, and ordinary garbage as often as needed, more especially during the summer season, has been very frequently a cause of annoyance, and not unfrequently a source of

danger to the well-being of the community, whilst the proper disposal of the same has been to the health authorities a source of anxiety and trouble.

This matter, which all recognize as very important in a sanitary point of view, and which has been time and again in one way or another brought to the knowledge of your Board, last year engaged the attention of the municipal authorities more than usual, and the erection of a cremating furnace had been contemplated.

This mode of disposal of such matter is no doubt effectual, whatever may be said of its economic value, but, in my estimation, it is not for our present needs an indispensable necessity. With a properly organized system of scavenging under the control of the Board of Health, there is no reason why such matter could not be disposed of in a much more economical way for some years to come without endangering public safety.

Such a system has been adopted with very satisfactory results, for instance, in Hamilton, a city which, so far as extent of territory and population, has about the proportions of Ottawa, and I have no doubt that some such system could be carried out here with advantage. At all events, the public requirements in this respect are such as to make it imperative that some such scheme be devised, and no doubt this question will early engage the attention of the municipal authorities of next year.

Removal of Night Soil.—I can safely say, as regards the work of emptying privy vaults, details of which are fully given in the Sanitary Inspector's report, the public requirements in this respect during last year, were more satisfactorily attended to than ever before during my term of office. This work is done by contract, by the pail and barrel system, is supervised by two assistant inspectors, and the matter removed is deposited on farms as a fertilizer. This mode of disposal, when properly effected, in my estimation, offers no special objections in a sanitary point of view, whilst it is a material benefit to the parties so utilizing it.

Abatement of Nuisances.—The number of premises visited during the year with a view of causing the removal of unsanitary conditions complained of or otherwise detected, whether due to want of or imperfect drainage, defective plumbing, or otherwise caused; and the number of prosecutions instituted to enforce the regulations of this department in such matters, as detailed in the Sanitary Inspector's report, are evidence that during the past year the work of this department has been pushed with all the facilities at our command. In fact, so far as individual improvements are concerned, the past season has been one of marked progress in sanitation. It is to be regretted, however, that owing to the dilatoriness of the municipal authorities to carry out the recommendations of your Board, as regards the construction of subsidiary drains on a certain number of streets in this city, this department has been powerless to improve the unhealthy condition of many dwellings and premises thereon. Next year's council will no doubt give the matter a favourable consideration, and the work of construction pushed on early next season, with all the rapidity due the importance of such sanitary improvements.

The construction of a sewer in Canal Street to connect Lewis Street drain with the main sewer, which is now being made, is worthy of special mention as a work calculated to afford facilities for the proper drainage of a large section of the city. Whilst on this question of drain-making, I cannot too strongly urge the indispensable necessity of the careful supervision of such works, the vital importance of which, to the well-being of the community, is second only to plumbing. The benefits to be derived from the appointment of a person of undoubted competency to superintend the proper making of such works, whether private or public, in all its details, can only be calculated by the amount of evil they are productive of when improperly done.

Vaccination.—The law requiring parents or guardians to have children vaccinated has been of little effect during the last year; few vaccinations were made. In fact, nothing less than an epidemic of small-pox will cause the public to wake up to the necessity of availing themselves of this preventive measure. It is fortunately true that we have had no small-pox here for some time past, but its presence in several localities of this Province should be a sufficient incentive to be prepared before it is too late, for we cannot foretell how soon it may be among us.

Inspection of Dairies.—The law, so far as it relates to the inspection of dairies and the licensing of milk vendors, has been carried out last year to the extent of our possibilities; I am forced to say, however, that owing to circumstances beyond our control, this matter has not received all the attention it was our intention to give it. The fact is, the public requirements as regards this and other duties devolving on the Sanitary Inspector and myself, are such as to make it an indispensable necessity that a horse and carriage should be at the disposal of this department. This is now the more imperative in view of the large suburbs presently to be included within the limits of our city.

A. ROBILLARD, M.D,
Medical Health Officer.

ST. CATHARINES.

Chairman's Report.

I have the honour of submitting to you our Annual Report, in accordance with the Public Health Act of Ontario.

When I accepted the position of Chairman of the Board, although I had been a member of the Board since its first organization, I did not fully realize the responsible duties pertaining to the office, and some of those duties I fear have been rather indifferently performed, especially after having been so ably attended to by my predecessor, Geo. C. Carlisle, Esq. Fortunately, however, we have been favoured with a season that has not required any very special attention.

The experience of the past year has convinced me of the necessity of having a Medical Health Officer in connection with the Board, who could be consulted at all times as occasion might require, thereby relieving the Chairman of a large share of responsibility in connection with cases that arise of which the latter may have no knowledge. That officer could be appointed without salary, and paid for services rendered during the year.

The question of compulsory vaccination will be taken up at the next regular meeting of the Board, in compliance with the request of the Provincial Board of Health. The City Council is still expending a large sum for drainage in different parts of the city, from which we expect to receive beneficial results in due time. The water commission is also extending the water supply over a large area, and citizens generally are getting alive to the necessity of having pure water. The impure water used from many of our wells is, no doubt, a serious cause of a large amount of sickness, yet it is surprising how owners of wells adhere to the idea that the well water is all right, and even go so far as to defy the Board to close them up. The work, however, is gradually going on, and numerous wells are being closed or disused. In some cases we have had the water analyzed, and when found bad have ordered the wells to be closed forthwith.

Our Board has requested the City Council to have erected a small building on the grounds of the General and Marine Hospital, for the purpose of isolating cases of contagious diseases—other than smallpox—that occur in families or hotels, where it becomes necessary to have the patients removed, thus affording a convenient place where such patients can receive the necessary care and nursing. The city pays a sum annually to the hospital for this and other purposes.

The statistics from report of city clerk show the death-rate from all sources, up to 15th Nov., 1888, to be 175, being a death-rate of 17.5 per 1,000. Deduct from this amount 43 deaths by accident, old age, etc., and there are only 142 deaths from natural causes, making actual death-rate 14.2 per 1,000.

The expense account of our Board will be inside of the appropriation of \$500. Three hundred and sixty of said sum is paid to the Sanitary Inspector, who performs his various and sometimes very unpleasant duties in a most efficient manner.

During the year there were 12 cases of typhoid, 13 of scarlatina, 63 of diphtheria, and 19 of measles.

SAMUEL G. DOBSON,
Chairman.

ST. THOMAS.

Medical Health Officer's Report.

As Medical Health Officer for the city of St. Thomas, I beg to report as follows :—

During the year ending Nov. 1st, the city has been remarkably free from disease, with the exception of scarlet fever and diphtheria. We have had 63 cases of scarlet fever without a single death; 32 cases of diphtheria and 3 deaths; 6 cases of typhoid fever and 1 death. Only 2 cases of measles were reported, and no deaths, making a total of 103 cases, with four deaths. Two of the cases of typhoid fever had contracted the disease before coming to this city.

Much has been done during the present year in improving the sanitary condition of the city by our efficient officer, the Sanitary Inspector. I have accompanied him on several occasions in the performance of his duties, and have rendered him all the assistance in my power. I consider the city in a better sanitary condition at the present time than it has been for several years past.

J. B. TWEEDALE, M.D.,
Medical Health Officer.

TORONTO.

Secretary's Report.

In accordance with the requirements of the Public Health Act, I have the honour to submit the annual report of the Local Board of Health of the city of Toronto for the year 1888.

The following is a synopsis of the work carried on during the year under the supervision and direction of the Board :—

The first step taken by the Board was to give the citizens the fullest information possible regarding the requirements of the Public Health Act. This was done by way of having large boards, with the most important extracts from the Act printed thereon, and the boards placed in very conspicuous places throughout the city.

A number of inspectors are employed by the Board, looking after the many complaints sent in to the Medical Health Officer. These inspectors are kept very busy and do their duty in a satisfactory manner. They are required to report from time to time what particular duties they have been engaged in, and such Report is at hand when called for by the Board.

Private Drains.—The attention of the Board having been called to the method of constructing private drains, the following order was passed and a copy transmitted to the city engineer, with instructions to rigidly enforce the law :—

“That from this time forth all private drains must be constructed in accordance with the by-law relating thereto.”

Since this order was passed, very few complaints have come to the knowledge of the members of the Board.

The Gaol.—On the 27th March, a report as to the sanitary condition of the above named building was received from the Medical Health Officer. This report embodied a report from one of the city plumbing inspectors, clearly setting forth what was required to place the building in a better sanitary condition.

A lengthy letter from the Government Inspector of Prisons, also bearing on the subject, was received a short time after. These documents were referred to the Committee of the City Council, who have charge of the said institution, for consideration.

The matter was subsequently taken up in earnest, and an architect appointed to examine the building and prepare plans, etc., embodying as much as possible the recommendations set forth in the Medical Health Officer's and plumbing inspectors' reports.

Tenders were let, and the improvements are now well under way, and the Board hopes to be able to report before long that it is one of the best buildings of the kind in the city, so far as sanitary matters are concerned.

Inspection of Milk.—This important subject was first introduced to the Board this year by way of a circular from the Provincial Board of Health.

The Medical Health Officer drew up a report setting forth the necessity of having the dairies, creameries, etc., thoroughly inspected, but owing to the large amount of important business before the Board, the matter was left over for future consideration. Nothing further was done with the matter, and it is the wish of the Board that next year will see a rigid inspection carried out.

Ashbridge's Bay.—On March 27th, a large deputation waited upon the Board and asked its co-operation in furtherance of a scheme whereby the waters of Ashbridge's Bay could be made clean and more healthy.

They suggested the making of a cut at the east end of the bay, thereby connecting it with the lake, and thus allowing the polluted water and refuse which has for a long time been very detrimental to the health of the citizens residing in the locality to flow out into the lake.

The Board appointed a sub-committee of five of its members to examine into the whole matter, and consult with the city engineer, city commissioner, and all parties interested, with a view of bringing forward some feasible scheme for cleaning the water of the bay named.

This sub-committee reported that, after giving the locality a thorough inspection, both by land and water, and after carefully considering the whole matter, they had come to the conclusion that the only feasible scheme which could be undertaken with a view of good benefit was to make a cut at the eastern end of the bay right through to the lake, thereby joining the two waters, and with the proper winds, the refuse, etc., would flow out into the lake, while at the other end of the bay the fresh water would flow into the bay.

It was further suggested that the above works be commenced without delay, and be done by day labour, under the supervision of the city engineer and city commissioner.

The report of the sub-committee was adopted by the Board, and after procuring from the city engineer an estimate of the cost of carrying out the scheme to completion, the whole report was recommended to Council for adoption.

The Council, after considering the great necessity for the improvement, adopted the report in its entirety. The work was begun under the supervision of the city commissioner—large gangs of idle men were seeking work, and a number of them were given employment, some digging, others hauling and wheeling the sand, etc. After a good summer's work it has been completed in a very satisfactory manner, and in the short period since it has been completed, a very marked improvement can be noticed in the whole locality surrounding the bay. The winter having set in, of course very little water can flow in and out of the bay, but it is to be hoped that by this improvement the rush of foul water into the lake will continue until nothing remains on the city's eastern water front but a fine fresh body of water.

His Worship the Mayor, Ald. Drayton, the Chairman of the Board, and the City Commissioner have been indefatigable in their endeavours to see the scheme carried out successfully, and to those gentlemen a large amount of credit is due.

Drainage of Lanes.—The attention of the Board was directed to the very unsanitary condition of many of the lanes of our city; and as the Council have the right by by-law to take the initiative and lay down drains where required, on sanitary grounds, and assess the owners of the property immediately benefited for the cost thereof, it was a strong recommendation from the Board to the Committee on Works and City Engineer to have all the lanes of the city properly drained, so far as practicable, as soon as possible.

The Board learned with gratification that its recommendation to the Committee on Works has been extensively carried out, and where lane drains have been laid, a much better and healthier atmosphere is noticed in the locality.

It was the expressed desire of the members of the Board that this work should continue until every lane of the city was properly drained, as it had been proved that this is the proper way to drain all houses, instead of constructing the drain along under a house to connect the same with the street sewer.

Collection of Garbage.—The Medical Health Officer submitted a lengthy report on the above subject, and directed the attention of the Board to the great necessity for having the garbage of the city collected twice a week during the warm weather, instead of once as at present. From a sanitary point of view, the members of the Board thought the idea a first-class one, and a strong recommendation was sent to the Markets and Health Committee, who have charge of such matters, asking it, in the interest of the health of the citizens, to have a semi-weekly collection of garbage made during the summer months, and, further, that sufficient funds be placed in the Estimates for the purpose of carrying out the same.

The Markets and Health Committee subsequently adopted the recommendations of the Board and carried on the work as suggested.

That the idea was a success is evident from the fact that very few complaints, indeed if any, were heard of from the delay in the collection and disposition of garbage and refuse.

Island Conveniences.—The matter of providing conveniences for persons camping and residing on the Island during the summer months was considered by the Board, and an order was passed to the effect that the Property Committee be requested to take such steps as it may deem expedient to have proper conveniences placed at different points on the Island, for the use of the citizens generally, as well as the campers and residents thereon.

The Committee on Property presumably have dealt with the matter, as no complaints from the above cause have been reported to the Department.

Island Garbage and Refuse.—Two men have been employed all summer collecting the garbage and refuse on the Island. The garbage, when collected, was burnt up and buried, in order that it might not be a nuisance to the many citizens spending the day over on the Island. The result of such a scheme was remarkable, as not a complaint was heard throughout the summer. The Board hopes that this means of destroying the Island garbage, etc., will continue until some more feasible scheme can be adopted.

Inspection of Plumbing.—On the 4th of May, the Medical Health Officer informed the Board that, in accordance with the new Plumbing By-law, the plumbing inspectors had ceased to report to his Department and receive instructions therefrom.

The Board, after a careful consideration of the matter, decided to ask authority from the Council for the Chairman to introduce a Bill to amend the present by-law regulating plumbing, so that the inspectors shall attend and report on matters referred to them by the Medical Health Officer.

It is a matter of extreme regret that the Board has to report that the action of the Council in passing the Plumbing By-law, without making any reference therein to the Medical Health Officer, was most injurious to the health of the citizens, as a large number of matters were reported daily which require the attention of practical men, and as a result all such reports could only be dealt with to a certain degree, and then deferred and dropped.

It is not only expedient but requisite and necessary that the plumbing inspectors should report to the Medical Health Officer's Department on certain matters, and the Board hopes that such a provision will be made in the new by-law before being finally passed by the Council.

Closets and Urinals.—The Medical Health Officer informed the Board by letter that he had written the superintendents of the different railway companies asking that before the advent of warm weather the closets and urinals in connection with their respective stations and stopping places be properly cleaned and kept in a first-class sanitary condition. Subsequently, replies were received from the aforesaid representatives of the railway companies, stating that it would be attended to at once, and that no complaint could arise from any negligence on their part.

The Public Halls.—Some persons having directed the attention of the Medical Health Department to the insanitary condition of the public halls belonging to the city, the officer of that Department had a complete examination of the said halls made in order that the cause of complaint might be properly located and report made as to what was necessary to remedy the evil complained of.

The report was received by the Board, as it was thought that in the interest of the health of the many persons using the said halls something should be done to make complaints impossible, and a request was forwarded to the Property Committee, who have charge of the same, to the effect that a thorough overhauling was necessary of the city's halls in view of the complaints made.

Supply of Milk.—The Medical Health Officer wrote asking the Board for instructions in the matter of obtaining permits by those persons dealing in milk in accordance with the requirements of the Health Act, and the Board gave him positive instructions to strictly enforce the Act so far as the same relates to the supply of milk in this city.

Inspection of Factories, etc.—This very important subject received considerable attention at the hands of the Medical Health Department, and a lengthy report thereon was submitted to the Board. The report stated that 278 establishments had been inspected, and 210 of the same were found to be in first-class sanitary condition, the balance, 68, have more or less been placed in a better condition, and very few complaints have been made as to unhealthiness, etc.

A large number of private dwellings have been inspected and found more or less in a sanitary condition. Many dwelling houses have not as yet done away with the old-fashioned and very unhealthy privy-pits, and, as a matter of course, any place with such a nuisance as this in the neighbourhood must necessarily be unhealthy to the residents.

The citizens are gradually being educated into the necessity of closing up all privy-pits, and before many months very few will be located in the centre of the city.

The City Water Front.—This very important matter has engaged the attention of the Board, and a lengthy report bearing upon the subject was received from the Medical Health Officer. After giving the matter considerable attention, a sub-committee of the Board, together with the Medical Health Officer and the City Commissioner, was appointed to take immediate action in the premises, and authority was granted the chairman to hire a dredge and have the important slips dredged and cleaned with all possible despatch.

Dredging was carried on for many days, and the large quantity of most filthy sewage—disease breeder—taken from the slips was enough to disgrace any city.

That the action of the Board in having the above work done with so little delay was approved of, could be learned from many citizens.

There is only one way whereby all this dredging and cleaning, as well as annoyance and inconvenience could be done away with, and that is by having the mouths of the sewers emptying into the slips extended out to the ends of the wharves, where they could get a clear passage and better working.

By this improvement the many disgraceful scenes at present noticed in our important slips will be avoided, and the Board strongly recommend the immediate action of the Council in having such a scheme carried out.

The cost of dredging being very high, in comparison with the cost of purchasing a dredge, the Board strongly recommended to the Council the purchase of one, as its use will be required more or less throughout the season.

Public Abattoirs.—The attention of the Board was directed to the great necessity of establishing a public abattoir within the limits of the city, thereby doing away with those disease-breeding places known as slaughter-houses. A committee of the Council has taken the matter up and are looking after information on the subject, as to the cost of working, etc.

This, if established, will, no doubt, be a step in the right direction.

Cat Fish Pond.—A number of residents in the vicinity of High Park waited on the Board in reference to the unsanitary condition of the above named pond. They claimed that the said pond in its present state was most injurious to the health of those residing round about. The Medical Health Officer submitted a report on the subject, and recommended certain improvements to the same. After hearing the report read, the whole matter, with all documents referring thereto, was referred to the Property Committee for consideration, with a suggestion that a proper survey of the locality be made, and that the place be thoroughly inspected with a view of bringing forward some feasible scheme whereby this much desired improvement might be carried out. The matter has been before the Property Committee, and as it is not yet determined what plan will be carried out, consideration of the same will have to be continued next year.

Consumption of Smoke.—This question has engaged the attention of the Board this year. A sub-committee was appointed to meet and confer with a sub-committee of the Markets and Health Committee, with a view of adopting some scheme whereby the vast quantities of smoke arising from factories and large manufacturing places might be consumed. The joint sub-committees have not held a meeting yet, hence the matter stands. It is the desire of the Board that this matter should not be allowed to drop, but that consideration be carried on until something is accomplished.

Narrow Streets.—The Board received a communication from the Assistant City Engineer, drawing attention to the practice of subdividing lots in the area between Yong street and the Don, and Front street and Carleton street, in rear of other houses, or cutting up lots with streets only thirty feet wide, contrary to the provisions of the statute governing the same, thereby forming a hot-bed of infection for the spread of disease and epidemic. The attention of the Board of Works was subsequently directed to the practice, and the Board earnestly hope to see a prevention of such an unsanitary evil strictly adhered to.

Privy-pits, Wells and Cisterns.—The Medical Health Officer brought before the Board a report setting forth the great necessity of having the law amended, giving power to his Department to order the closing up of all privy-pits, wells and cisterns forthwith, these places being very detrimental to the health of people residing where they are located, any number of cases of sickness having been caused by their existence.

The recommendation was approved of and will have to be considered again at an early day.

Smallpox Hospital.—The Board have received, from time to time, many letters and petitions praying for the removal of the above named institution from its present location on Broadview avenue to some place more suitable for the same. A committee of the council has considered the question and recommend the removal of the institution with all possible despatch, but the Board, while anxious to comply with the wishes of the people as much as possible, could not at the present time see a more suitable location for such an institution; and as it must necessarily be located somewhere in the city, it is very likely wherever it is placed there would be the usual outcry for its removal.

Public Health Act.—The Board, after viewing the many difficulties which have arisen from time to time in the enforcement of the Public Health Act, appointed a sub-committee to consider and report what legislation is requisite in order that better work may be accomplished in the Medical Health Department. The sub-committee has not yet reported the result of their deliberations, but it is expected they will do so shortly.

Free Vaccination.—Free vaccination has been carried on during the year very extensively. The employees of many of the large establishments and factories have submitted to vaccination, and it is considered that this action was a very wise one, as there is no doubt but that such a proceeding helped very much to prevent the spread of the smallpox.

Garbage Destructor.—The attention of the Board was again directed to the great necessity of having one or more furnaces or crematories constructed for the purpose of

destroying the large amount of garbage collected throughout the summer annually. This is a very serious matter, and the Board has considered and recommended the establishment of some machine for the purpose named.

The council last year adopted the proposition, and have gone so far as to provide money to pay the cost of constructing some such machine, but there the matter now stands. It is to be hoped that before any great period passes by, one, at least, of these machines will be constructed and tried, and if found to work satisfactorily, another can be erected. Next year's Board should do all in its power to have a scheme brought forward and adopted.

Ice Cutting.—Last year's Board adopted certain restrictions as to the places where ice would be allowed to be taken from the Bay, and the result of said restrictions has resulted very beneficially to the health of the citizens using ice for drinking and such like purposes. The Board have this year adopted the same restrictions, and have instructed the proper officers to strictly enforce the same.

Sanitary Police.—The Police Department detailed four of their men for special sanitary inspection duty, and the result of their labour has been very beneficial to the city at large.

In conclusion it must be mentioned that the members of the Board have worked faithfully and well during the year, and have done all in their power to carry out its duties to benefit the citizens of this vast and growing city. The Chairman, Alderman Drayton, has been most assiduous in the discharge of his duties, and it is to that gentleman, to a very great extent, that the successful working of the Medical Health Department is due. A great amount of good work has yet to be accomplished, and it is to be hoped that next year's Board will endeavour to carry out the same.

JOHN BLEVINS,
Secretary.

In the report of the Medical Health Officer to the Local Board, he states that the number of diphtheria cases reported for the year was 490, but he does not give the number of deaths.—[Ed. Reports].

TOWNS.

BARRIE.

Chairman's Report.

A careful inspection of all the places in the municipality where filth usually accumulates was made during the month of April by the Sanitary Inspector, aided by members of the Board, resulting in a general cleaning up. The removal of certain piggeries and the plentiful use of deodorising material placed the town in a fair sanitary condition, considering the absence of a general or complete system of sewerage.

A greater number of cases of serious sickness have occurred than during any of the past few years; amongst the number were several cases of typhoid, mostly contracted elsewhere, some resulting fatally. Diphtheria also prevailed, but to a less extent, its victims being children.

With those exceptions the health of the town has been normal.

R. KING, SR.,
Chairman.

BROCKVILLE.

Medical Health Officer's Report.

In compliance with the requirements of the Public Health Act, I beg leave to submit the following report of the sanitary condition of the town of Brockville:—

As my appointment to this office dates from April, 1888, I am able only to speak of what has been done during the past six months.

During the early part of the summer an unusual amount of diarrhoea made its appearance in the town, and gave rise to reasonable suspicion as to the purity of the water used for drinking purposes; an investigation into the condition of the inlet pipe and well of the waterworks was ordered by the town authorities, and conducted under the supervision of the chairman of the Board of Health, the chairman of the waterworks company, the town sanitary engineer and myself. One connection was found to be imperfect, and one length of pipe near outer end slightly broken. The well was found to be perfectly tight and clean. The waterworks company promptly remedied these defects, and no complaints regarding the quality of the water have been made since that time.

During the past two months typhoid and typho-malarial fevers have been very prevalent.

The medical practitioners of the town have cheerfully carried out the provisions of the health by-law, and have sent in returns of all contagious and infectious diseases occurring amongst their patients; these returns have been carefully tabulated by the secretary of the Board of Health, and infected houses immediately placarded. Notices were served on the teachers of schools attended by children from these houses, to exclude them from the school until a card is received from the attending physician that recovery has taken place and that the house has been properly disinfected; a similar notice was served by the Sanitary Inspector on the librarian of the Mechanics' Institute library, and no books were issued to inmates of such infected houses, and those books which have been exposed to infection are properly disinfected before being again put into circulation.

By the strict observance of these regulations we have been able to reduce the number of cases of infectious diseases to a minimum, there having been only seven cases of scarlet fever and five cases of diphtheria reported up to the present date.

As I have stated, the presence of typhoid and typho-malarial fevers in Brockville this summer has been very marked. The connection of typhoid fever with the excremental pollution of drinking water is well known; this results from the soakage of water through soil charged with sewage.

This is not surprising when we consider how little care is exercised to prevent the filth from privies and old drains from finding its way into the wells used for drinking purposes. Some late authorities assert that not only will water contaminated with sewage containing typhoid dejections cause typhoid fever, but water polluted by sewage can disseminate the diseases independently of typhoid excreta.

This was so evidently the case in connection with the water used from a public well on King street, east, where five cases of fever were distinctly traceable to its uses—that the Board of Health, acting on my advice, closed the well. No new cases have developed in that vicinity.

I would strongly recommend to the consideration of this Board the question of the advisability of closing up all the public wells, as I believe the water supplied by them is to be regarded with the gravest suspicion.

Perhaps more has been done this year towards a systematic cleaning and disinfecting of privies than ever before; and yet, I am aware, that very little good has as yet been accomplished. The health by-law provides that this yearly cleaning be done on or before the 15th day of May; parties interested take advantage of this clause and leave for the 15th of May what should have been done in the winter months. I would respectfully suggest that the by-law be so altered or amended as to enable the Board of Health to order a systematic cleaning of all privies, beginning from the 15th day of November and extending to the 15th day of June.

By this means the town can be divided up into blocks and the work done in a thorough and intelligent manner.

Milk being one of the necessities of life, its value in respect of the amount of butter and its other constituents, becomes of great importance to society, since it forms almost the entire food of invalids, and children at that period when they are the least able to withstand any interference with the purity of their food ; there is, however, no one article that is so frequently adulterated or sold in an impure condition.

Whilst the prevention of adulteration is important, we should go still further and check the sale of milk that is impure in other ways ; and if the best interests of the public are to be protected, it is absolutely necessary that the condition of the animals producing it, and their surroundings, be rigidly inspected. For the carrying out of this end it is necessary that permits for the sale of milk should be granted to such vendors as are willing to enter into an agreement to furnish the Board of Health with every facility for examining into the workings of their dairies ; and, also, immediately to report any disease existing either in their homes or amongst their cattle. These permits and agreements are printed and ready for use whenever the town council sees fit to pass a by-law authorising the same. The law suffices to enable the health officers to prevent the adulteration of milk offered for sale, and an inspection and report will be made from time to time.

I wish to bring before your notice the advisability of purchasing, on the outskirts of the town, a suitable lot on which could be erected a pest-house.

Our town has been mercifully preserved from any need of such a place during the past two years, but to be ready for any contingency is surely the part of wisdom ; and by having suitable preparations made, much danger to life and expense to the municipality might be avoided.

The drainage of our town is, as you are aware, making very satisfactory progress ; it is unnecessary for me to make any special or lengthy allusion to it. The excellent system adopted, and the careful manner in which every part of the work is supervised and carried out, leaves nothing to be desired. All plumbers are licensed, all plumbing inspected, and no connections are allowed to be made with the sewers until all has been done that scientific knowledge can suggest to render our homes free from the invasion of disease.

During my short term of office I have received very great assistance from the Sanitary Inspector—Chief Mitchell.

We have, together, investigated every case of complaint entered in the "complaint book."

The Inspector informs me that he has inspected 268 yards, and has ordered closets cleaned to the number of 208.

HARRY E. VAUX, M.D.,
Medical Health Officer.

CHATHAM.

Medical Health Officer's Report.

In presenting my annual report for the year terminating November 15, 1888, allow me to congratulate you on the very excellent and useful work done by the Board, and thank you for the prompt action you have always taken on matters brought to your notice.

The following is a summary of the preventable diseases that have occurred in town during the year : Typhoid fever, fifteen cases, one death ; diphtheria, twenty-seven cases, five deaths ; scarlet fever, twenty-one cases, three deaths ; measles, four cases. Total, sixty-eight cases of preventable diseases, causing the loss of nine lives.

The physicians of the town, recognizing as they do the importance of promptly reporting cases, and the inspector's daily call on each of them, has served to make the reports to this office almost perfect.

The inspector personally now attends himself to the disinfection of all the premises where contagious diseases occur. From investigations I feel convinced that the last outbreak of diphtheria in the town was imported from the country, where the system of reporting, placarding and disinfecting is seldom if ever enforced.

If an arrangement could be made with the four adjoining townships so as to form one large health district, it would be very greatly to the advantage of all concerned. You have already, by their consent, supervision over the slaughter houses adjoining the town, which will undoubtedly be a great advantage to you in the struggle against preventable diseases. The inspector ordered the cleaning of 565 privy vaults during the year, while thirty permits were granted for the erection of new water-tight closets. Thirty licenses were granted for milk vending. All the dairies were visited by the inspector and myself during the year at least once, in many cases oftener, when the condition of their premises, cow-byres etc., were carefully looked into; also the methods of handling milk, etc., and suggestions made to the dairymen where improved methods were advantageous.

During the year the town council granted sufficient money to purchase a complete set of apparatus for testing milk; they also passed a by-law for the regulation of the sale, quality, etc., and empowered the health officer and inspector to carry out its provisions. Since the purchase of these instruments I have submitted thirty-seven samples to the various tests (in some cases three or four samples from the same vendor), and found that, in a large number of cases, the samples were not standard milk; but I find that the samples last examined were much better than the first. So far we can confidently state the apparatus has been an advantage to the consumer, and will undoubtedly be a greater one after a few parties who persist in adulterating milk will have been prosecuted. The pestiferous hog has been very much complained of by the citizens, and I find that clause 14, rule 7, schedule A, of "The Public Health Act," is not sufficient to cope with the nuisance of hogs in this part of Canada where the winters are so open. If the regulations of the Act were made operative all the year round the nuisance would be far less.

The disposal of kitchen garbage has given rise to considerable trouble to the inspector, and is a nuisance to many citizens. On one street in particular, householders got into the habit of dumping garbage at night in front of a neighbour's house, and the practice became so universal that almost every householder on the street would find a heap of garbage in front of his residence in the morning. The Inspector left a notice at each house on the street warning them to stop the nuisance; he also called their attention to the easy method of disposing of kitchen garbage by burning. The practice has since stopped.

The landlords were notified to supply their tenants with proper water-closet accommodation, and at once complied. All the several nuisances complained of, as recorded in the book for that purpose, were looked into and abated when we thought we had power, but several were of such a nature that they were, properly speaking, merely annoyances rather than nuisances to public health, and we had no power to remedy them. We take great satisfaction in stating that we were ably seconded by citizens of the town, and it was not found necessary in any case to have resort to the law courts.

WM. R. HALL, M.D.,
Medical Health Officer.

COLLINGWOOD.

Secretary's Report.

In compliance with your printed circular of the 9th ultimo, I herewith forward report of the sanitary condition of the town during the past year.

The question of water works, which are an absolute necessity from a sanitary standpoint, is now agitating the public mind of this town, a by-law for the purpose having been submitted by the council, and will be voted on next month. I trust this will meet with the approval of the electors.

We have had the following cases of infectious and contagious diseases :— Croup membranous, thirteen cases ; diphtheria, twenty-one cases and one death ; fever enteric, seventeen cases ; measles, four cases ; scarlatina, nine ; whooping cough, 125.

There has been no serious outbreak of any contagious disease during the year, and apparently no necessity for any active work by the Local Board of Health.

There is no regularly appointed medical health officer in the town.

JOHN HOGG,
Secretary.

DUNDAS.

Medical Health Officer's Report.

During the past year there have been quite a number of cases of infectious diseases within the limits of the town. Diphtheria made its appearance just about twelve months ago, and during the next few months a good many cases occurred, these cases being distributed over nine or ten families. Three of these families occupied adjacent dwellings, and the disease spread from one to the others, but with this exception they were widely separated, and it is probable that the infection was not carried from one family to another in the town. A few cases of measles occurred, how many cannot be stated, as they were not reported. Rôtheln was epidemic in the spring, and but little attention was paid to it in most cases. No cases were reported by medical men. Of typhoid fever there have been a number of cases, but the disease has not been prevalent. Malaria has shown its influence in much the usual way. There was comparatively little of the diarrhoea from which children, particularly, usually suffer so much in the latter part of summer, this immunity being due partly to the fact that there was no lengthy period of high temperatures.

In a general way, the sanitary condition of the town has been good, especially during the summer and fall months. The few cases of typhoid that have occurred have been in groups for the most part, and that the cause has been unwholesome water, there seems little doubt. The necessity for a further supply of wholesome drinking water still exists. It is to be hoped that the steps taken towards this end by the municipal council will be successfully followed up. The want of water that can be relied on as good, is, perhaps, the most unfavourable condition—among those that are preventable—from a sanitary point of view, in which the people of the town are placed.

JAMES ROSS, M.D.,
Medical Health Officer.

Chairman's Report.

In accordance with the terms of the Act, every property holder within the corporation has been duly notified as to the cleaning of vaults, drains, and cesspools, and the same has been promptly carried out under the direction of the Health Officer during the summer. Several complaints of open drains and cesspools which were detrimental to health were received, but in every instance these were, upon proper notification to the parties concerned, put in good repair. The Board have, for two or three years back, notified your council to keep on hand a supply of copperas, so that vaults should be disinfected immediately after cleaning. We find that, owing to the liberal use of copperas, typhoid fever in Dundas was very much reduced. The Board would also urge upon you the question of sewage, as it is evident that all liquid matter thrown out must either sink into the ground and pollute the wells in time, or remain in cesspools and contaminate the air. We consider this of vital importance, as the town in another year will have the best water supply in Canada ; and the introduction of water services to householders will necessitate some system of drainage.

JOHN BERTRAM,
Chairman.

GALT.

Medical Health Officer's Report.

In making this my fourth annual Report, I am glad to say that the town shows a lessening of the death-rate and a freedom from outside epidemics, and a lower rate of infectious diseases than the majority of towns in the Province. This, I think, may be accounted for by the thorough work done by our Inspector, and a general desire of the inhabitants to assist him and the Board in carrying out instructions. Though yet imperfect, I hope the time is not far distant when we may be in a better condition to carry out and enforce the Public Health Act. I would suggest to this Board having some appointed place that the Inspector could be found, and certain hours made known that any grievance the public may have, he will be in a position to take action. As things now exist he is hard to find. Numerous complaints have been made to me through the year of families throwing slops at their back doors, especially during the winter when frozen snow and ice accumulate in large quantities and become very objectionable in the spring. I recognize the fact that it is hard to overcome this difficulty, when we have no system of sewerage to carry off this matter; and until a proper system of water works and sewerage is adopted, this grievance will continue to exist.

During the year there has been twenty-eight cases of diphtheria reported, with only two deaths, which shows that it was not of a malignant type.

Seventy-three cases of typhoid fever spread over the whole year with only four deaths. The many rumors connected with the existence of this disease led the public to suppose that hundreds of cases existed around them, and in the town. The truth of the matter is we have not had the usual number of cases as in former years, nor in the average as much as other towns of similar size.

There has been a few sporadic cases of scarlet fever and measles, but not epidemic in character and of a very mild type.

I cannot close my report without expressing my regret at the action taken by some persons in the municipality regarding the hospital by-law, but hope and trust that all obstacles will soon be removed, and by the end of another year the building will be completed and properly equipped to receive the many that now have to be sent out of town for proper care and treatment.

G. P. SYLVESTER, M.D.,
Medical Health Officer.

KINCARDINE.

Medical Health Officer's Report.

I beg leave to report that the general health of the town has been fair.

There have been forty-eight cases of diarrhoea caused principally by the excessive heat of past summer, and confined exclusively to children under twelve; three cases of very mild typhoid; four cases of diphtheria—mild, one adult and three children; six cases of cholera morbus; two of intermittent fever—mild.

There have been no complaints of nuisances within the corporation and everything is satisfactory.

BENJ. WALDEN, M.D.,
Medical Health Officer.

LINDSAY.

Chairman's Report.

The first important matter brought under the notice of the Local Board of Health occurred on the thirty-first of January: it was reported that a young man, Hugh Graham, who had been working in a shanty north of Kinmount, had come to Lindsay

on that date, and that he was then suffering from a malignant attack of diphtheria, and that he reported to the Town Physician that he had been under treatment by Dr. Frost, at Kinmount, who, he said, told him that "he had better get on to Lindsay." Graham at the time produced a bottle containing medicine prepared by Dr. Frost. The young man being comparatively a stranger in town, very ill and indigent, was taken charge of by the town authorities with a view of getting medical treatment and preventing the spread of the disease under which he was suffering.

He was placed under charge of the gentleman employed by the municipality to afford medicine and attendance to the poor and indigent of the town. At a serious expense to the town of Lindsay a house had to be rented and furnished and supplied with food, fuel and attendance until he was reported sufficiently well to go to his native village, Newcastle.

Acting on the statement made by Graham, information was laid against Dr. Frost for contravention of the Ontario Public Health Act, and the matter investigated by the Police Magistrate of the town of Lindsay, which investigation resulted in the dismissal of the charge without costs.

The necessary precautions as to detention and thorough disinfection of the coach in which Graham travelled was promptly attended to.

The system of sewerage of the town of Lindsay is on the whole defective. There is a main or trunk sewer running through part of Kent street, which was constructed some years ago for the drainage of the street and cellars on each side of it, but not intended to be used as an outlet for offensive slops or the soil from water closets. The closets at one time connected with the sewer have been cut off, and the sewer is now used only for the purpose for which it was originally constructed. Complaints having been made that offensive odours came from the opening of the sewer, we caused about half a bushel of dry charcoal to be suspended under the grating, and poured liberal quantities of Little's soluble phenyle in through the gratings, the application of which remedies has materially mitigated the evil complained of, and has been the means of saving a large expense in periodical flushing of the sewers.

On the recommendation of the Board the council purchased, early in the present year, an acre and a half of land well situated, as a "dumping ground" for the reception of offensive accumulations. Decaying animal matter is buried in this piece of land, and deep trenches dug for the reception and covering in of the soil removed from closets. The place is well removed from the centre of population, and with ordinary supervision has afforded and will continue to afford great accommodation to the public.

The health of the town has been fairly good. Appended hereto is a statement taken from the books of the Medical Health Officer of all contagious diseases reported.

The only serious cases which the Board has to bring to notice, are those of Mr. King who resides in the South Ward. In October diphtheria made its appearance in his family, six of whom were attacked of which four terminated fatally. Another case occurred in the family of Mr. Leary in the East Ward, one case terminating fatally; but with the prompt removal of the family to a temporary residence down the river, the disease was easily stamped out so far as Mr. Leary's family was concerned. The necessary precautions as to placarding have been adopted; and in all cases in which contagious diseases existed, the children from suspected localities were temporarily prevented from attending the public schools.

The Board have to express its sincere regret that some ten weeks ago Dr. Coulter, Medical Health Officer, was visited with a serious attack of diphtheria and is still so debilitated as to render him unfit for immediate duty.

His duties have been performed by Dr. Poole, who attends to the important department of Medical Health Officer with his usual zeal, courtesy and decision of character, as well as that of an accomplished sanitarian.

The Board beg to point out that the deaths reported in the town of Lindsay during the present year amount to only forty-eight from all causes, or 48-6000 of the estimated population; and as the great majority of such deaths are attributable to old age and natural decay, the town may be fairly classified as one of the healthiest in the Province of Ontario.

In the month of August of the present year this town had a visit from the Association of Executive Health Officers of the Province of Ontario, which body was accompanied by Dr. Hewitt, President of the American Public Health Association, Drs. Rae and Lachapelle, Presidents of the Provincial Boards of the Provinces of Ontario and Quebec respectively, and other well-known sanitarians. Their deliberations lasted three days, during which very important papers were read and discussed.

The sanitary business of the town has been fairly attended to, and it is very noticeable that the people generally are getting well reconciled to the sanitary supervision prescribed by the laws of the Province.

Cases of disease reported to the Medical Health Officer:—Measles, 86 ; diphtheria, 14 ; scarlet fever, 4 ; whooping cough, 8 ; chicken pox, 1 ; typhoid fever, 2.

JAMES DEACON,
Chairman.

MEAFORD.

Medical Health Officer's Report.

The health of the public in this municipality for the current year has been fairly good. No epidemic of any kind has visited this section.

Eight cases of fever of a markedly typhoid type have occurred in all during the year, but of those four were importations, the disease having without doubt been contracted elsewhere.

Three of the cases proved fatal, that is, of those who contracted the disease elsewhere, and two of those who contracted it in this town also died. The fatal results were chiefly attributable to accidental complications rather than to any intrinsic severity in the form of the disease itself.

No cases of diphtheria, small-pox, scarlet fever, or any other infectious disease except the one above-mentioned have been reported.

As regards the sanitary arrangements of the town, the removal of sewage and excreta is done chiefly by means of private drains, and in the thickest populated part of the town the water closets are for the most part provided with water-tight sliding box drawers, after the manner of the dry earth closet system. It is proposed to extend this system, which has been in operation several years, and to perfect it as far as possible.

As regards the prevailing types of disease met with in this locality, it may be said that catarrhal affections of the respiratory passages are exceedingly common, particularly in autumn and spring. The damp and changeable climate, and the fact that in the spring the ice most generally remains long upon the bay, probably conduce to the prevalence of the above-mentioned maladies among the people. Acute and chronic rheumatic affections and neuralgias are also quite frequent, and it is probable that their exciting cause is often in common with that of the other group of diseases.

In other respects this section may be regarded as very healthy, the air being exceedingly pure and bracing, and entirely free from malarial influence. The water springs are abundant and excellent, while the rolling character of the land in the locality round conduce to natural drainage.

All the known methods of disinfection and precautions employed for the purpose of preventing the spread of disease, in the cases of typhoid, have been applied.

C. F. SNELGROVE, M.D.,
Medical Health Officer.

MILTON.

Chairman's Report.

The Board of Health of the Town of Milton present their report for the year 1888 :

The Board held five sittings during the year, at which the various complaints made were dealt with.

As the Board has no Medical Health Officer to report any cases of disease which may be prevalent, they have relied upon what they could gather from observation and other sources, and are pleased to report that the state of the public health of the town for the past year has been comparatively good.

Two cases of diphtheria came under the notice of the Board, one being of a malignant type and proved fatal, but from neither of those cases did the disease spread.

There were several cases of typho-malaria in the town which may have originated from various causes, none of which terminated fatally.

There were complaints made of unsavory odours proceeding from the tannery and from refuse matter therefrom, which were abated after the Board investigated the same.

The Board would call the attention of the council to the necessity of procuring some place to which waste refuse matter and garbage could be taken from yards, lanes and alleys, and burned, the attention of the Board being frequently called to the amount of such matter which has accumulated in some of the yards of business places.

They would also urge upon the council the necessity of proceeding to have the slaughter houses removed from within the limits of the corporation, as those places have been and still are of very great offence to those who reside in the vicinity of the same.

The Board would report their recognition of the great need there is of a better sanitary system of disposing of excreta than at present exists, and would urge the abandonment of the system of cesspools, and the adoption of a system of ash or dry-earth closets. Owing to the increasing population, and the use of the present system, the water in many wells in the town will naturally become impure and dangerous to public health.

SAMUEL DIOE,
Chairman.

MOUNT FOREST.

Secretary's Report.

In the early part of the summer our sanitary inspector made a thorough inspection of the town, visiting all the back yards and other places which might require looking after, and promptly notified all parties to clean up and purify their premises. It has not been necessary this year to impose a fine upon any of our townspeople for breach of the sanitary laws.

The only cases reported to me were two cases this fall of diphtheria.
We have no medical health officer.

W. C. PERRY,
Secretary.

NAPANEE.

Secretary's Report.

In presenting this my annual report of the work of the Board of Health for this municipality for the current year, I have very great pleasure in stating that in consequence of the almost entire absence of contagion and the general healthy state of the town, the

duties of the Board were rendered comparatively light. The Board held several meetings at stated times during the year. At a meeting in April the usual notices were placarded throughout the municipality, for the cleansing of premises and the removal of all garbage and other deposits endangering the public health, which, under the supervision and vigilance of an efficient sanitary officer, were well observed and thoroughly carried into effect, and the town placed in a satisfactory sanitary condition.

The sanitary officer made periodical tours of inspection of the municipality, a report of which was submitted to the board at each meeting for its consideration. Any violations of the provisions of the Public Health Act discovered were immediately ordered to be remedied in the proper way.

Eight cases of diphtheria and one of measles were reported; no deaths. In each case the usual means were employed for isolation, and the prevention of the further spread of the disease.

There was constructed during the season some additional sewerage, which, no doubt, will have a beneficial effect in improving the sanitary condition of the town. The existence of a building within the town limits, used as a slaughter-house, was a source of annoyance to the Board by the frequent complaints of the disagreeable and offensive odors emitted therefrom. The proprietor failing to comply with the authority and direction of the Board, the nuisance was speedily removed by its subsequent and mysterious destruction by fire. As a matter of economy the Council have this year dispensed with the services of a medical health officer.

PHILIP EMBURY,
Secretary.

NIAGARA FALLS.

Secretary's Report.

The town has been free from epidemic diseases, and the public health is good. Owing to the prevalence of small-pox in Buffalo and in Tonawanda (ten miles distant), and this place being situated on one of the highways of railway travel from Buffalo, compulsory vaccination has been resorted to, and about one thousand persons have been vaccinated; in fact, most every one who was not vaccinated some few years ago at the time of the Montreal epidemic. There has been no small-pox among the people of this town, and the Local Board of Health don't intend there shall be, if vaccination will prevent it.

The need of better sewerage is felt here, and it is gratifying to report that the need is being met in a measure by the putting in of properly constructed tile drains on several streets.

J. ROBINSON,
Secretary.

ORANGEVILLE.

Medical Health Officer's Report.

Owing to the continued neglect in furnishing detailed reports on the part of householders and physicians, I am able merely to give a general outline of the diseases prevalent during the season of 1888, together with a few brief remarks relating thereto. Until municipalities realize the importance of making an appropriation to defray cost of sanitary work, and of providing an efficient system of house to house inspection, the process of sanitation will be imperfectly performed. Unless vigorous measures are adopted early in the season, such diseases as typhoid fever and diphtheria will continue to exist throughout the whole year. This has been the case in this municipality, outbreaks, more or less severe, of diphtheria occurring at intervals excepting during the hotter and drier periods.

The month of January was characterized by numerous cases of an affection known as lacunar tonsillitis, merging now and then into scattered cases of true diphtheria. Pneumonia also prevailed to a considerable extent during the same month.

Towards the latter part of March measles of an ordinary type made its appearance. Children belonging to infected households were suspended, and the epidemic gradually subsided; but not until well on in May.

Numerous cases of diphtheria occurred in April, some of which were fatal.

The month of June, ordinarily marked by but few cases requiring medical attendance, was peculiar in that measles and diphtheria were both rife throughout the month.

Scattered cases of diphtheria continued to crop out during July. I duly instructed the Sanitary Inspector to see that all wells should be cleaned out. I have reason to know that the law in this respect was "more honored in the breach than in the observance."

August, which is usually counted as one of the unhealthy months, was remarkable for the absence of much general disease. I was requested by the Public School Inspector to report on the suitability of the premises on the corner of P. W. road and Zina street, for the purpose of a ward school. After a careful examination of the rooms proposed to be used, I reported adversely, owing to the imperfect provisions for ventilation and the poor lighting facilities.

In September a few cases of malarial and typhoid fever occurred, but so far as I am aware all ended in recovery. Several deaths from diphtheria took place in this month, and fears were entertained lest it should become necessary to close the public schools.

In several instances criminal carelessness prevailed as to isolation of infected patients and families. There is but one remedy for this, in my opinion, namely, summons the offenders and fine them as heavily as the law permits.

In conclusion, allow me to say that so long as the town neglects to provide proper sewerage and permits the multiplication of privy-vaults, while its inhabitants depend on wells for their supply of the life-giving (and in such cases *death-dealing*) beverage, so long will we be ravaged by diphtheria and fever, and shunned by visitors and those who would otherwise cast in their lot with us.

Moreover, I must refer to the wonderful small number of children protected by vaccination attending our schools.

I am not aware that any steps were taken by the board to carry out my suggestions in regard to the milk supply furnished by our dairymen.

When the recommendations of a Medical Health Officer are ignored, when a board cannot be persuaded to meet regularly, and when a Council neglects to fill vacancies in the Board created by death and illness, then it is indeed difficult to see what benefits can be obtained from any such farcical compliance (or rather non-compliance) with the Public Health Act.

CHAS. M. SMITH, M.D.,
Medical Health Officer.

PETERBOROUGH.

Medical Health Officer's Report.

The present year has been the least eventful of all the years since the passing of the Public Health Act. No outside epidemic has visited the town; there has been a much less proportion of typhoid fever, diphtheria and scarlet fever, not so large a number of complaints as in previous years, and a better compliance with the Statutes than heretofore. No better evidence of this could be given than the steadily decreasing death-rate. In 1885 this was 18½ in the thousand; in 1886, 18; in 1887, 17, and during the present year only a shade above 16. These are striking figures. To give another view, a difference of 2 per thousand in the death-rate of a town the size of Peterborough means a saving in ten years of nearly 200 lives. High sanitary authorities have given 17 per thousand as a standard

to be aimed at. Peterborough has gone beyond this, and may therefore be pronounced one of the healthiest towns in the world. No better recommendation to manufacturers looking for a place to locate, or private parties looking for a town to settle in, could be given, than to say that the death-rate here is only 16 per thousand.

Slaughter Houses.—Regular inspections of slaughter houses have been made, and notices served when necessary. More rain having fallen this summer than last, it was found that greater care was needed in cleaning up. The butchers now render their tallow every day or two, instead of keeping it two or three weeks. This lessens the disagreeable odor of that process. I may here correct a popular error as to the unhealthy nature of these fumes. They are certainly highly unpleasant, but not dangerous from a sanitary point of view.

Removal of Garbage and Excreta.—This has become a regular business, and quite a number of men are engaged in it. As in other years the greatest difficulty has been found in the rear of certain stores on George street, where the constant presence of a sanitary inspector would hardly keep things right. We have also had difficulty in disputed lanes where garbage is deposited, it is difficult to tell by whom. I think a couple of men from the street force should be detailed at stated times to clean them up. These are the places that attract attention, and, if ill-kept, give a bad name to our town. Manure heaps are sometimes allowed to attain larger proportions than the law permits. It should be remembered that not more than a waggon load in one place may accumulate without being removed. In many yards heaps of rubbish, such as ashes, scrap, metal, chips, etc., not dangerous to the public health, may be found. The health statute does not cover such cases, except in the spring of the year when refuse of all kinds must be removed before the 15th of May. I will again call the attention of the public to this matter at the proper time. Some try to evade the section relating to the cleaning of water-closets, but on the whole there is much more work done each year. Earth-closets make rather slow progress. If well kept they are a great boon, but if faulty in construction and not emptied regularly, they are worse than the old privy-vault.

A Word as to Sewerage.—It seems to me that this is a matter for the Dominion or Provincial authorities to take up. It affects not only our town but scores of similar towns springing up all over the country. For a place even to ascertain the best method of sewerage, is not only an expensive matter but a difficult question in the face of conflicting systems. Sewage farms seem to be making headway at present. Let the matter be investigated thoroughly and decided once for all by the central authority, and towns can adopt the system it recommends modified only to suit the particular necessities. Agricultural legislation is being constantly made by both Governments for the benefit of the farmers, and I don't see why sewerage investigations should not be carried on for the benefit of those living in towns and cities. At any rate the question might be looked into by our Parliamentary representatives.

Regarding the drainage of the Nicholls Hospital, the directors are making arrangements by which there will be no contamination of the river with dangerous matter.

Well Water.—I have analyzed about seventy samples of well water, and, as in previous years, have found a large portion very impure. I would again point to filtration as the only remedy for this. In the case of a water works supply cheap filters can be attached to the tap. Children attacked by diphtheria are generally said by their mothers to be great water-drinkers, and typhoid fever seems to occur more frequently among the water-drinking class than among those who resort to more potent beverages.

Infectious Diseases.—Twelve deaths from diphtheria and two from typhoid fever have occurred throughout the year. No scarlet fever has been reported, but an epidemic of that disease is evidently not far off, in which case an important question not yet brought before the Board will have to be considered. I refer to the exclusion of Mechanics' Institute books from families attacked with that disease. It is powerfully infectious and every precaution must be taken to prevent its spread. What more natural than to amuse a child recovering from scarlet fever with illustrated books, and what more likely than that the next family into whose hands the book falls will, if liable, take the disease without dreaming where it comes from.

Placarding of houses has been carefully attended to. Most families are anxious to have the cards removed at the earliest possible moment. This cannot be done until the house, clothing, bedding, etc., have been thoroughly disinfected.

Milk Supply.—There have been no complaints, and hence it was not deemed necessary to put in force the clauses relating to the supply of milk. However, vendors were notified that their places would be subject to inspection.

The bakeries have been, on the whole, well kept, and their water supply is rather better than the average.

Nicholls Hospital.—Following are the statistics of infectious diseases in the Nicholls Hospital during the past year, as kindly furnished by the Lady Superintendent :—

| | Cases. | Deaths. |
|---------------------|--------|---------|
| Typhoid fever..... | 15 | 1 |
| Diphtheria | 11 | 1 |
| Scarlet fever | 2 | .. |
| Measles | 1 | .. |

Sanitary Work.—Appended is a synopsis of sanitary work done during the year. The chief and members of the police force have done their best as sanitary inspectors, but this year their more important duties have frequently interrupted the work :—

| | |
|---|-----|
| Yards examined | 554 |
| Water-closets examined | 420 |
| Yards found in good condition | 125 |
| Yards ordered to be cleaned | 429 |
| Manure heaps, hog pens, etc., removed | 30 |
| Notices served, dirty yards and closets | 180 |
| Notices served, garbage and refuse | 75 |
| Old wells cleaned | 6 |
| Dead animals burned | 206 |
| Houses placarded | 23 |

J. CLARKE, M.D.,
Medical Health Officer.

PICTON.

Medical Health Officer's Report.

For the earlier part of the year 1888, I have nothing special to report ; a general good state of health prevailing in the town, with the exception of the advent of infantile disorders, as measles, scarlatina and whooping cough.

As the cold weather advanced, particularly during the month of October, there were many grave attacks of pneumonia, some of which terminated fatally. During the months of October and November there were fourteen cases of typhoid fever and two deaths. At the same time there were many cases of malarial fever, chiefly caused by the low water that obtained in a marsh at the southern limit of the town. The attention of the Council has been directed to this, and a committee appointed to take action relative to the drainage of the same.

In October a case of diphtheria was reported to me. The house was quarantined and every precaution taken to confine the disease to its limits ; two of the inmates were affected, and the disease was confined to the house, all the inmates making a good recovery. It is worthy of remark that this disease was contracted by the father of the family and his son while visiting a house at Trenton, where diphtheria had prevailed some weeks before.

No general system of vaccination has been adopted here for the last four years, since an outbreak of small-pox at that time ; consequently, a great number of the children attending the public schools are unprotected against an attack of this disease.

A by-law has been passed granting \$30,000 for the construction of waterworks, but I consider the source from which the water will be taken to be impure and unfit for drinking purposes.

In consequence of the increasing population of the town some wells have been contaminated with sewage matter, and have been prohibited, hence the necessity of having a pure supply of water for sanitary purposes.

HENRY B. EVANS, M.D.,
Health Officer.

PORT ARTHUR.

Medical Health Officer's Report.

I herewith beg to present my health report for 1888. We have enjoyed comparative immunity from disease this year, but this fact should not be placed entirely to the credit of the townspeople in general. Considerable difficulty has been experienced during the year in making certain parties come to time in the way of observing health regulations framed for the public good ; some nuisances still exist which should not be tolerated for a week, though they were pointed out by me early in the summer. In this particular it seems to me that the Local Board of Health cannot hold itself blameless, as it has the power, *if it has the will*, to abate all nuisances. In sanitary matters the people of Port Arthur have not this year exhibited their usual strong good sense and discrimination. In proof of this assertion, we are confronted by the fact that we have had twenty cases of diphtheria this year, as compared with one last year. In at least 75 per cent. of these cases the nuisance which caused the disease was distinctly located, and after abatement of the nuisance the disease was choked off in that particular locality. It only once or twice occurred that a second case broke out in the same habitation, and all parts of the town seem to have been invaded at some date during the summer. It is true that we had only two deaths in twenty cases ; but, in view of the foregoing fact, we are much more indebted to the kindness and indulgence of Providence than to our own good sense and forethought. If due attention to cleanliness had been observed, we would probably have had only four or five cases of diphtheria instead of twenty. Last year every one seemed cheerfully to follow the direction of the Board, and we had only one solitary slight case. Last spring we were, as a town, somewhat dirty and negligent, and, as a consequence, we had twenty cases of diphtheria ! While this was very largely true of private yards and back premises, it is only due to the Town Committee of Works to say, that when the true state of affairs was represented to them in a letter from me to Chairman Smith, vigorous attempts were at once made to put the streets and ditches in proper order. I am told that about twelve miles of ditches were cleaned out, and many nuisances on the public highway abated. We have had also several cases of scarlatina, four of whooping cough and one of measles ; but, with the exception of one case reported from the hospital, we have had no instances of fever. In the adjoining municipality of Oliver there was for a short time an epidemic of measles, which we escaped.

There has been no extension of our sewerage system since last report, when construction was going on ; but of the benefits of what we have obtained in the way of efficient drainage we have had ample proof during the past summer.

Negotiations have been steadily carried on during the past year with regard to the construction of water-works for the town. The labors of those concerned in these negotiations have been crowned with success ; a contract has been signed and all preliminary work will be begun this winter. The question of vaccination of the pupils in attendance upon the High and Public Schools overlooked last year, has been thoroughly attended to since the midsummer vacation ; but no action was taken as regards the Separate School,

as the trustees omitted to notify the Medical Health Officer of their wish to have this matter attended to. Only one complaint has been lodged during 1888 of the adulteration of milk, and on examination it was plain to the eye that the sample in question had been grossly adulterated. General reference was made of the case at the time in the local daily paper, since which time there has been no complaint. I believe that the milk supply is in general pure and good; but, in the absence of the proper instruments wherewith to test the quality of the milk sold to us, no analysis has been made.

On the basis of the assessor's returns as to the population of Port Arthur, the death-rate for the twelve months ending 15th November, 1888, is exactly nine to the thousand. Last year it was twelve and a quarter. Probably no town of similar size in Canada can produce a more favorable report under this heading. This includes all deaths from whatever cause, in our hospital; and, also, several cases in which people came to town from outlying points to secure proper nursing and necessary comforts, nowhere to be obtained between Rat Portage and North Bay except at Port Arthur, and in which the patients lived only a few days after their arrival here. Such cases amounted to fully 30 per cent. of the total number of deaths; and as those who die in the hospital are nearly all waifs and wanderers from all parts of Algoma, and never saw Port Arthur till the prospect of death was before them, the death-rate of the *bona fide* citizens of our town, who are included in the census, would not amount to much more than six to the thousand of the population. A cursory examination of the birth returns for the past year will show that they are somewhat incomplete. Hoping that any matter complained of in this report will receive attention, and will merit favorable notice in the next annual health report.

THOS. S. T. SMELLIE, M.D.,
Medical Health Officer.

PRESCOTT.

Secretary's Report.

The Local Board of Health appointed a Medical Health Officer and a Sanitary Inspector, whose duties commenced in the month of May.

At intervals during the season the Sanitary Inspector reported to the Local Board the sanitary condition of the town, which he found in a very satisfactory condition. He made several house-to-house visits, and the inhabitants of the town have at all times shown a cordial disposition to comply with the requirements of the Public Health Act and the suggestions of the Sanitary Inspector. As a consequence, we have been comparatively free from contagious or infectious diseases, with the exception of three or four cases of diphtheria, one of which proved fatal. These cases were scattered, and were not traceable to any cause requiring special attention from the Board of Health. It is gratifying to notice that the Medical Health Officer's services were not required during the year.

B. WHITE,
Secretary.

PRESTON.

Secretary's Report.

Last spring, as has been the custom in this corporation for twenty years or more, notices were posted up through the village ordering the annual and general cleaning up of all premises. The particular instructions contained in the notices were complied with to the satisfaction of the Inspector when he made his rounds.

During the year there has not been much to complain of as to the sanitary condition of our village, except, perhaps, a few malodorous pig-sties, and these the Inspector visited whenever he could feel the smell outside the statutory limit.

It is also a matter for congratulation that by-laws were passed and came into force on the first day of May last, prohibiting cattle from running at large, and compelling the owners of dogs to have them tagged and registered in the clerk's office.

The effect of these by-laws has been to greatly reduce the number of cows, and to a lesser extent, unfortunately, the dogs kept within the corporation, and to stimulate a comparatively new industry here, viz., that of milk peddling.

In connection with the milk business I might say that the trade is not yet under as proper a system of inspection and regulation as it ought to be, but trust that there will be nothing to complain of in this respect long before my next report.

I think that if it were suggested to the School Board that no pupil be admitted to the school without furnishing proof of successful vaccination, they would add one more to their nearly perfect rules and regulations.

I am sorry to state that the mortality for the year has been greater than usual, but I am pleased to add that the deaths were not caused by preventable diseases.

WILLIAM A. HUSBAND,
Secretary.

ST. MARY'S.

Medical Health Officer's Report.

In compliance with the requirements of the Health Act, I beg leave to present to you my report for the year 1888.

I am happy to be able to state that so far as reported to the Secretary, we have had no cases of contagious diseases whatever save one of diphtheria and one of typhoid fever. These were of a mild nature and made perfect recoveries, so that whatever unsanitary conditions may have been in the town this year, they have not been instrumental in doing any harm.

The Health Inspector, as usual, made a careful inspection of the town last spring, and succeeded in doing a great deal of good by directing the attention of our citizens to their duties in regard to cleaning up their premises and putting them in a good healthy condition, but although one visit might be enough for some persons to enable them to discharge their duties aright, there are others who would require several before they considered they had any right to make any move whatever. I think it would be well, therefore, if the Board would allow the Inspector to make several visits during the season, and see that the requirements of the Health Act are rigidly carried out in regard to cleaning out yards, privies, wells, etc. No excuse whatever can be offered by persons neglecting to do their duty in this important particular, because the council this year secured a location (by lease) for the depositing of all kinds of filth, and I have no doubt would do the same next year if asked by the Board of Health.

There were some matters to which I referred last year in my report, especially the sewer, that must still be occupying the attention of the Board, if they have not been dismissed from their minds altogether, for no attention whatever has been paid to them so far.

Milk is a diet specially adapted to children, and at a time of life when they are unable to resist the injurious effects of impure food. It is therefore of the utmost consequence that that only should be sold which has the different elements of its composition in normal proportions. An inspection therefore ought to be made of the cows giving milk, to see that they are all healthy, that they get a good supply of pure water, that they are properly housed and cared for, that the ventilation of the stables in which they are

kept is what it ought to be, that they are kept clean, that no impurities of any kind are in or around the buildings that would have a tendency to taint the milk in any way,—in fact, it is impossible to be too particular upon this one article of diet. It is only necessary for any member of the Board to read section 113, sub-sections 10 and 11 of the Health Act, to ascertain his duty on this very important matter.

JOHN SINCLAIR, M.D.,
Medical Health Officer.

SIMCOE.

Secretary's Report.

Your Board of Health beg to submit the following report : No epidemic has visited us during the year. We have returns for seven months, in which time twelve deaths have occurred. On account of the former clerk's absence from town we were unable to ascertain the number of deaths in the preceding five months, but averaging the same the probable number will be twenty-one for the year. Very few complaints of nuisances have been made to the Board, but when made instructions have been immediately given to have the cause removed. A short time ago vaccination was recommended, and a proclamation was issued asking the inhabitants to give the same their prompt attention, which was complied with to quite a large extent.

N. C. FORD,
Secretary Board of Health.

SOUTHAMPTON.

Medical Health Officer's Report.

In presenting my annual report, I have to congratulate the people of the town on account of its freedom from disease. We have had no epidemics of either contagious or infectious diseases ; but, although we have been free from these, the suburb known as Denny Mills, was visited with an epidemic of typho-malarial fever of a severe type. There were no deaths. The precautions taken prevented the disease from spreading.

In all cases the instructions of the Board of Health were willingly complied with.

WILLIAM SUMMER SCOTT, M.D.,
Medical Health Officer.

STRATHROY.

Medical Health Officer's Report.

In accordance with the Health Act, I beg leave to submit my report for the current year on the sanitary condition of the town.

At present we are pleased to be able to state that the general health of the inhabitants of this place is fairly good. There are few, if any, cases of fever remaining just now. Diphtheria, which at one season of the year threatened to give us a great deal of trouble and annoyance, has, so far as I am aware, ceased to exist. The number of cases was nineteen and the deaths eleven. The type of the disease which visited us at that time was of a very malignant nature, but by a judicious use of disinfectants, the isolation of the families as much as possible, and the carrying out of strict sanitary arrangements, we were enabled to confine the disease to the immediate neighbourhood of the outbreak.

It is difficult to account for the cause ; it might be partly due to a want of proper drainage, as the locality in which the epidemic prevailed was low and the drainage very imperfect. In the early summer months we had not a very plentiful supply of rain, and followed by great heat, so that when the fall rains came on we had quite a number of typho-malarial fever, nearly all of which, however, were readily controlled by proper treatment. There was only one death, so far as I know, due to fever, and in that case the disease was contracted in a neighbouring town where a more serious form of the fever prevailed.

During the months of April and May a thorough cleaning of closets took place. The alleys and bye-ways were cleared of everything noxious and disposed of by the contractor of that work to the satisfaction of the Board and all concerned, as there were no complaints this year that I have heard of. As has been suggested in previous years, it would be well for the town to purchase a lot, so situated that it would not be in any way injurious and offensive to anyone, where all such refuse could be consumed or put to practical purposes for enriching the soil, etc. Some complaints have been made of parties depositing garbage and rubbish of all kinds on the sides of some of the leading roads adjacent to the town, thereby creating a nuisance. It would be well that in future the sanitary inspector be consulted before such material be left in that way, as to whether it be suitable for road purposes or not. There have, as in previous years, been complaints made as to matter thrown into the river by the woollen factory and tannery in the east end, which we hope may in some way be remedied the incoming year.

Before closing this report I might venture to call the attention of the Council to the advisability of securing a building that could be used as a hospital for a time when we are visited by epidemics of malignant diseases, so that isolation could be properly carried out by having those first attacked removed to where they could be properly looked after by a competent nurse or the mother of the family. The head of the family could then follow his usual occupation, and his residence need not be placarded ; and very much of this outlay would be required for the support of the family, and the prospects of recovery very much increased.

Your Board of Health have, as in the past, done all they possibly could do with the means at their disposal for the relief of those in want or distress ; and we hope ere long that sanitary science may be so thoroughly understood and practiced in this place that life may be prolonged and existence rendered less painful, disease diminished, rendered harmless or stamped out altogether.

G. HENDERSON, M.D.,
Medical Health Officer.

TRENTON.

Medical Health Officer's Report.

During the year we have had no serious epidemic, and have escaped well from the ravages of malarial and typhoid fevers, which, owing to the long continued drought, were so prevalent in localities similarly situated. I trust that to our efforts to enforce sanitary regulations some part of the good result is due. Diphtheria of a malignant and fatal type has prevailed in neighbourhoods not far distant, while we have escaped with comparatively few attacks and scarcely any mortality, only one case proving fatal ; but the mere fact that we are never very long rid of this pestilence shows that something is wrong with our sanitary condition, which should incite us to greater watchfulness and activity for preventive measures.

The manner in which reports of contagious diseases are forwarded to the Health Office is still faulty, though an improvement on former years. The Board, having now printed blank reports supplied to all the medical men, may reasonably expect still better results in this direction.

Our water supply is a matter of grave concern. The supply to the lower portion of the town, derived from springs on the first terrace hitherto quite pure, will soon be contaminated by sewage, as houses with common privy-pits are now built on two sides of it, and the porous soil on the elevated portion supplied by wells, renders them dangerous. I fear, however, that but little attention will be paid to this most important matter, since so much money has been and has yet to be expended on the improvement of our water-power; still it cannot be too early considered what are the best systems of both water-works and sewerage adapted to our needs and investigated by the Council and Board of Health.

With respect to our supply of milk, meat and other foods, I have instructed the Inspector to use the utmost vigilance in regard to its purity, which his enclosed report shows he has done.

At the time of licensing the milk vendors a thorough inspection of the cattle and premises, as well as an enquiry as to the food and care they received, was made by Mr. Preston, Veterinary Surgeon, and a favorable report presented. The butcher's shops were also examined and registered.

During the summer I reported to you the necessity for the purchase or lease of an hospital for contagious diseases in an isolated locality, as the experiment of Baker Island proved too expensive to be repeated, besides being inaccessible to ordinary conveyances.

More attention should be paid to scavenging the streets and squares, as well as the lanes in rear of stores and shops. It would pay the street committee to keep a horse and cart for this purpose, which could be used also by the Board of Health for the removal of the contents of earth closets, etc., which at present is a thing of some difficulty.

CHARLES MCLELLAN, M.D.,
Medical Health Officer.

WHITBY.

Medical Health Officer's Report.

I have the honour to submit the annual report upon the sanitary condition of the Town of Whitby.

Owing to the sanitary measures adopted in the fall of 1887, we have had a comparatively healthy year. During the dry hot weather we had a few cases of typhoid fever of a mild type, none proving fatal.

In consequence of the unusually damp and humid weather prevailing this fall a few cases of sore throat and diphtheria were reported, when I endeavoured as far as possible to bring the Public Health Act into operation. The tile drain mentioned in my last report has been completed by the town council, and has proved effectual in removing the nuisance complained of by Principal Hare and others. The Inspector has continued to make the necessary inspections, and in required cases has caused privy-vaults to be closed up and dry-earth closets substituted.

Before the frost set in the closets attached to the Public Schools were thoroughly renovated and every precaution taken against disease. Finally I may state, as helping to prove our good sanitary condition, that the chairman of the Board of Health has not deemed it necessary to call a meeting of the Board for some months.

D. P. BOGART, M.D.,
Medical Health Officer.

WINDSOR.

Medical Health Officer's Report.

Another year of comparative freedom from contagious disease is a matter calling for profound thankfulness on the part of the people of Windsor. The number of cases reported and the number of deaths are by far the lowest since the establishment of the Board of Health. The record is as follows:—Scarlet fever, 26 cases, 4 deaths; diphtheria, 50 cases, 6 deaths.

The mortality from all causes from November 15, 1887, to November 15, 1888, was 134, being at the rate of 15.58 per 1,000, placing the population at 8,600.

On the appearance of small-pox in Buffalo, Toronto and other places in this Province, your Board appointed three public vaccinators and supplied them with vaccine from Dr. Stewart's establishment at Palmerston, but I am sorry to say that very few availed themselves of the services offered. Typhoid fever is hardly known here.

The water supply, which has received some notice this year, calls for further investigation. Samples for analysis were sent to Ottawa, and the Government Analyst gave a very favorable report, rating the water as the fourth purest of the samples sent to him for examination. Chemically the water is all right, but its biological character is not yet determined.

The large addition of 8,331 feet of water mains laid this year will be a great sanitary improvement, as it will bring the water within the reach of many who could not hitherto avail themselves of it, and it will form circuits where blind ends previously existed. It was a happy thought to put in a flushing connection from the new water main to all the sewers at the Wyandotte street crossing. It will go far to purify the sewers during the summer months.

While 2,932 feet of brick sewers, of an average diameter of 20 inches, have been constructed, I think it is a matter for regret that sewers were not put into McDougall street and Dougall avenue, both of which streets are thickly inhabited, and the people are compelled to maintain cesspools in their own yards or in the gutters in front of their houses. I hope that next year's council will deal with this matter. The council deserves the thanks of the Board of Health for the excellent work done in filling up the depression in the Pitt street sewer. It was a regular magazine of filth, but is now a comparatively clear stream. I understand that there is a deficiency in the law enabling the council to compel parties living on sewered streets to connect their premises with the sewer. I will ask the Provincial Board of Health to have this rectified, as it is a great farce to have a sewer constructed and then not used.

A recent report which I made to the Board of Education shews that in four schools visited there were 880 pupils on the rolls and only 782 seats. The minimum air space laid down by the regulations of the Education Department is 250 cubic feet of air space to each pupil. The average space in the schools mentioned is only 174 feet, and some of the rooms are as low as 94. This combines compulsory education with compulsory suffocation.

Milk inspection will be inaugurated next year, and in order to make it effective an increase in the annual appropriation will be necessary.

The butchers continue to slaughter on their premises and to empty the offal into the sewers. The entrails of animals in all shapes of decomposition, were some of the deposits in the depressed parts of the Pitt street sewer, and unless the police are held accountable in this matter the Board of Health cannot abate it. The work is done at night and the police alone can prevent it.

The late addition to the town of 262 acres, with a population of 600, will increase the work of the Board of Health, but it will also have a salutary effect in enabling it to place under systematic regulations a population which has hitherto taken very little pains to control contagious disease.

JOHN COVENTRY,
Medical Health Officer.

WINGHAM.

Secretary's Report.

Our town during the year has been entirely free from all infectious and contagious diseases. This is more than we expected at the beginning of the summer season, on account of the great nuisance which exists on one side of our town. This consists of a very large accumulation of dead and rotting timber and other rubbish, in what is known as Hutton and Carr's Mill Pond, on the River Maitland, between the Town of Wingham and the Township of Turnberry, and which has been collecting here for the last twenty-five years or more. It has now reached extraordinary dimensions, covering some 15 or 16 acres.

Owing to the obstruction of the natural flow, the water on the greater part of the pond has become stagnant and contains a large amount of rotten timber and other debris. In spring time dead horses and cows come floating down the stream at the "break-up," and contribute their carcasses to the general nuisance. During the hot season this pond emits a most disagreeable smell, polluting the atmosphere around it and increasing the danger to health.

We have endeavoured to get the County Council to remove this nuisance, under authority of the amended Municipal Act, 1888, relating to driftwood and fallen timber in streams forming the boundaries between municipalities, but so far we have been unsuccessful. The owners of the property on which the nuisance exists refuse to clear it away. The property at the present time is not worth anything. The removal would cost about \$4,000. So far as we can see the Board has no means or power to undertake a work of such magnitude as the cleaning up of this pond, and it is likely to remain as it is until something serious is the result.

This is the only nuisance we have, otherwise the sanitary condition of the town is good, and has been well attended to by our Sanitary Inspector. We have no Medical Health Officer. If the members of the Board, other than the Mayor and Clerk, were appointed for three years instead of one, as at present, I think it would be a great improvement.* I don't know how it is with other municipalities, but outside of the Mayor and Clerk we have three new members appointed every year.

J. B. FERGUSON,
Secretary.

WOODSTOCK.

Medical Health Officer's Report.

I have the honour to lay before you my annual report for the year 1888.

I am glad to inform you that the by-law relative to the dry earth system, which came into operation last May, has been very generally complied with. No less than 150 vaults have been cleaned out and filled up during the year, and the earth closets used instead; upwards of 400 are now in use, so that the old-fashioned vault is almost a thing of the past. However, it will take some time before the people fully understand and appreciate the value of the system.

Your Board have held monthly meetings when thought necessary, and a great amount of good sanitary work has been done during the year, especially by your efficient Inspector.

Early in the year he made a house-to-house inspection, educating the citizens as to the propriety of keeping their premises clean, and the importance of cleaning out the wells. I am pleased to inform you that about 350 wells have been cleaned out during the year, thereby lessening the mortality very materially.

*Under existing laws the appointments must be made every year, as soon as possible after the organization of the council in all municipalities.—[ED. REPORTS.]

I cannot congratulate you on the extreme healthfulness of the town, especially during the months of September, October and the early part of November, as several cases of typhoid and malarial fevers existed, as well as a few cases of diphtheria. Every effort was made by your officers and Board, assisted by the medical men, to prevent the spread of these diseases especially the latter. However, the mortality has been low when compared with places of like size.

I have reason to believe that the above diseases were due to bad water, sewer gases, and marshy effluvia. I trust that your honourable body will, as soon as possible, develop a scheme for the introduction of domestic water, as very many wells are dry during the hot season, and the water in the densely populated parts is almost wholly unfit for use; besides, with a constant supply of water the sewers could be constantly flushed, thereby lessening the danger from sewer gases.

I hope the sewage which has been pouring into Close's ponds for several years will be removed as soon as possible.

These measures being properly adopted and fully carried out, there is no reason why we should not be almost free from very many fatal diseases.

I would also inform you that I have during the year made two inspections of the milk sold, reporting the results of the same to the press.

I am confident that the dairymen and citizens will reap a benefit thereby.

ARCHD. McLAY, M.D.
Medical Health Officer.

VILLAGES.

ACTON.

Chairman's Report.

I have much pleasure in stating that the duties of the Board have been very light indeed. The requirements of the Public Health Act with reference to the sanitary inspection of all premises within the municipality, were duly observed. The Sanitary Inspector performed his duties carefully and to the entire satisfaction of the Board. He found the municipality in a good sanitary condition generally. A few violations of the law were found, but after due notice from the inspector the irregularities were remedied. A matter upon which I feel bound to congratulate the municipality is the fact that, during the three years which have elapsed since the organization of the Local Board of Health, the services of the Medical Health Officer have never been called into requisition through the appearance of dangerous contagious disease, the municipality being entirely free from such misfortune during that period.

H. P. MOORE,
Chairman.

ALVINSTON.

Medical Health Officer's Report.

This village has been remarkably free from disease throughout the whole year. Two cases of typhoid were reported, one of them fatal. Several cases of scarlatina were also reported; there was no death from this cause. Diphtheria was limited to a few cases, all recovered. Isolation and disinfection, though not enforced to the full extent of the law, yet proved sufficient to limit these diseases. Both scarlatina and diphtheria had been endemic here twice in seven years, hence no doubt the little tendency to spreading this year.

When the Board was organized four years ago, a strong effort was made to introduce dry earth closets, in obedience to the recommendations of the Provincial Board. Much opposition was encountered. The change was opposed in quarters where the Board reckoned on moral support. The system was pretty generally adopted, notwithstanding this opposition. The inspectors it would seem relaxed their vigilance after the first year, for the inspector for the present year informs me that not many over a third have continued the dry earth plan. This is a little strange, since the cleaning of privies every spring is compulsory, rigidly enforced and somewhat expensive. The dry earth plan is clearly much cheaper, and therefore should be acceptable to the very class who most generally object to it, the poor. Most families of this class residing in a small place have a garden plot, and therefore should have no difficulty in disposing of the contents of the boxes. One serious difficulty, however, in the working of the system, which I never saw noticed, is this: What is the chambermaid to do with the bucket she carries outside in the winter season, or for that matter in any season. She cannot pour it into the dry earth box, for it would be full in a day or two, and the contents would become one mass of ice, and could not be emptied before spring. Nor can she be allowed to throw the contents in any other convenient place. Now what is she to do? The question is difficult to answer. Those who keep a horse or cow have a manure pile, and it is their custom to empty the chamber bucket there, soon to be carried off to the fields. But all are not so fortunate. Indeed but few can get over the difficulty in that way. Even in summer the difficulty is not easy to overcome. It is at this point that the system breaks down. It is clear that two receptacles are needed. How can a second one be provided? To construct a kind of filter box over a pit, at a safe distance from the well, would not meet the case. That would simply be an attenuated privy.

The sanitarian meets no question more difficult than that relating to the water-closet. Could wells be dispensed with, the task would be made a good deal easier, but that is out of the question in small places. In this village the water is found near the surface. The wells are dug through loose earth and sand to a depth of eight or ten feet. Unless the well be water-lined surface water finds its way into it. That is certain. I would not like to trust even to water-lining. Breaks will gradually occur. Clearly then our well water is more or less impure. This impurity is in the ratio of the amount of filth permitted to enter the soil. Water-tight wells, wells only receiving the water from the bottom, are fairly safe on account of the distance the surface water must traverse before getting into the well; but I doubt if one such well can be found in the whole village. Owing to the nature of the ground on which our village is built, it is apparent that more than ordinary watchfulness is necessary. Unless cleanliness is observed and steadily maintained, our wells will become more and more contaminated, and in due time we shall witness epidemics of typhoid fever and other diseases decimating our population. I congratulate the board on its good work so far, and offer these notes of warning only as a stimulus to continued vigilance and unwearied action. What has been done this year must be repeated next year, and even more. "Eternal vigilance" is said to be the price of liberty; it is no less the price of health and longevity.

A. MacKINNON, M.D.,
Health Officer.

ANCASTER.

Medical Health Officer's Report.

The Sanitary Inspector and myself made a thorough inspection of all slaughter-houses, dairies and cheese factories in the township, and saw that they were kept in a cleanly condition during the summer. We also visited all houses and water-closets in the village and directed the owners to clean up, and use disinfectants; and through those means of prevention our municipality has been free from any epidemic. The public schools were also carefully inspected.

HENRY RICHARDSON, M.D.,
Medical Health Officer.

BELLE RIVER.

Medical Health Officer's Report.

In presenting my annual report, I congratulate the people of our small village on their immunity from any epidemic of either contagious or infectious diseases during the year.

I am not aware of any person having been vaccinated within the village during the year.

The system of drainage which is being carried out is doing much towards removing malaria from our midst; few malarial cases have shown themselves this season, and of a mild form, while formerly they were very prevalent.

All we want now is the drainage of the two ponds existing in the Grand Trunk Railway yard, and also along the track, principally east of the river.

I hope that it will soon be done by the railway company.

ULRIC GABOURY, M.D.,
Medical Health Officer.

BRUSSELS.

Medical Health Officer's Report.

During the year the Health Board has been active in looking after the sanitary condition of this district.

The usual complaints of offensive premises, neglected privies and defective drains, were fewer than in previous years; while pollution of the river adjacent to this municipality, testing and microscopically examining the purity of the drinking water from some wells, were new features of the work allotted to your Medical Officer. In all cases the remedies as far as practicable were applied to abate the nuisance.

More than the usual variety of contagious and infectious diseases has existed in Brussels this year, the mortality being small. Typhoid fever cases have been also more numerous this past autumn. The origin of the increase is probably due to the unusual dryness of the summer months, the diminished rainfall causing many wells to become dry, and a scarcity of wholesome drinking water, especially in the southern part of the village.

I would cordially thank the members of the Health Board for their cheerful readiness to attend to all the requests and suggestions made by me.

F. G. HOLMES, M.D.,
Medical Health Officer.

CARDINAL.

Medical Health Officer's Report.

I have the honour to report that the health of the municipality has been exceptionally favourable this year. We have been visited by no serious contagious disease.

The usual steps were taken in the early part of the year to place the premises of the residents of the village in a proper sanitary condition. Drainage was duly inquired into, and made efficient.

A few trivial complaints were made, which were promptly attended to by the Sanitary Inspector.

Your Board are to be congratulated on the favourable results of their efforts this season, and may feel encouraged to proceed in their work for the future with the same diligence that has guided them in the past year.

DUNCAN GOW, M.D.
Medical Health Officer.

CHESLEY.

Medical Health Officer's Report.

I am pleased to be able to report the general health of the municipality good, and that the year has been exceptionally free from contagious or infectious diseases. There have been a few isolated cases of zymotic diseases, but not epidemic. The great fire which almost entirely destroyed the business part of the village, while it caused very heavy financial loss to those interested, has doubtless resulted in very great sanitary benefit; and we have to-day the basis from which the most perfect system of sanitary protection can be formed of any place in western Ontario. I would suggest that the Board take advantage of the opportunity, and organize a plan which shall prevent the careless and filthy habits into which some are prone to lapse, and which are so offensive to good taste, and so injurious to the public health.

HECTOR A. BONNAR, M.D.,
Medical Health Officer.

CHIPPAWA.

Secretary's Report.

In accordance with the requirement of the Public Health Act, I have the honour to forward a report of the sanitary condition of the village of Chippawa.

We have had a few cases of diphtheria, one of which proved fatal. We have had several cases of measles and whooping cough of a mild nature; also a few cases of malaria, which were successfully treated by our Medical Health Officer.

On account of the small-pox being prevalent in the city of Buffalo, only 22 miles distant from this village, the Board of Health thought it necessary to have a general vaccination, which was successfully carried out by our Medical Health Officer. One hundred and seventy-four persons were vaccinated, the municipal council defraying all expenses.

WM. GREENWOOD,
Secretary.

DRESDEN.

Chairman's Report.

The Local Board of Health held its first meeting April 20th, 1888. The Board caused a thorough inspection of the sanitary condition of the town to be made, and every sanitary defect has been promptly remedied by the parties whose duty it was to attend to the same. The Board is pleased to be able to report that no deaths have occurred from contagious diseases, and that altogether only four cases have been reported to the secretary. Notwithstanding the dry, hot weather and scarcity of water in some localities, the health prevailing is remarkably good.

R. P. WRIGHT,
Chairman.

DUNDALK.

Medical Health Officer's Report.

It affords me pleasure to be able to report favourably of the sanitary condition of our village. During the last year we have been exceptionally free from what is known as preventable diseases. This has, no doubt, been due in large measure, to the precautionary measures taken by your Board in the house-to-house visits made with the object of

having wells cleaned out, back yards, water closets, etc., properly attended to. With but few exceptions the citizens have been praiseworthy in their compliance with the law in these matters. The reprehensible practice adopted by a few of having their privies connected with the drain running through the village, I am glad to know you very promptly checked. There is one avenue in which you might righteously expend some of your latent energy. I refer to a nuisance, now of long standing, viz., the *tannery*. Situated as it is on our leading street—where it never should have been—one would expect that special efforts would be put forth by its owners to have it free from those offensive odours which now almost stifle one as he passes. The injurious effect it must have on the health of those in its immediate neighbourhood—to say nothing of the unpleasantness—may be readily imagined. I deem it my duty, therefore, to advise the Board to take such steps as it may see proper to have said nuisance attended to, in so far as it is possible and expedient.

With regard to our more common disease, diphtheria, at one time the bane of the youth of this locality, has been almost extinguished, such cases as we have had being of a very mild type. No cases of scarlet fever have been reported. Diarrhoea among children during the last summer has been mild, and, so far as I am aware, without a fatal case. Typhoid fever, with one exception, has been unknown. In this case, which, unfortunately, had a fatal termination, there is good reason to believe the disease was contracted in a neighbouring village. Whooping cough has sprung up within the last few months, and at present is somewhat prevalent. There has been one death from this disease—a complication of pneumonia being the chief factor in the issue. In conclusion, considering the exalted situation of Dundalk—said to be the highest point in the Province—and its inhabitants enjoying the fresh and invigorating breezes from our northern lakes, we have reason to expect, with fair efforts on the part of our health officers and the assistance of our municipal council, the citizens generally to experience in the future the same immunity from disease we have had during the last year.

JAS. McWILLIAM, M.D.
Medical Health Officer.

EMBRO.

Medical Health Officer's Report.

In compliance with the statute in that behalf, I beg to submit my annual report for the current year.

I have to congratulate the Board on the happy immunity of our municipality from any contagious disease or nuisance which would necessitate the interference of your authority. This is in pleasing contrast to some less favoured localities. There has not been reported, and it is believed there has not occurred, a single case of those contagious diseases dangerous to life.

All slaughter-houses have been removed beyond the limits of the corporation, and the only one now existing is kept in an excellent state of cleanliness.

The dry-earth treatment of night-soil, prescribed by your honourable body, has been very generally adopted, and to this cause I in great measure ascribe our phenomenal exemption from epidemics of a virulent disease. In this connection I would compliment the wisdom of our municipal councils, present and past, in refraining from underlaying our streets with those sinks of disease, breeding-filth-sewers, to which so many of our towns and cities owe so much of unenviable notoriety for disease and death. Sewers are but the receptacles and vehicles for the dissemination of the germs of the most dreaded epidemics of disease.

Our milk supply has been so satisfactory that there has been no occasion for the inspection of it or the issuing of licences to its vendors.

The only visitation of any kind of epidemic disease we had during the year, was that of malarial or intermittent fever, of a rather mild type, and quite amenable to anti-periodic treatment, the first cause of which seems to have been due to direct importation from abroad. This was its first appearance for the past fifteen years, so far as I can learn. In the absence of more serious matters for our consideration, I might direct your attention to its mode of propagation. There is no doubt but, like other epidemics, it has its origin in a microscopic parasite, whose germs, floating in water or vapor find a favourable hatching-nest in putrid deposits of any kind, and then multiply with inconceivable rapidity, and attack the bodies of those who swallow them. In places of high temperature and uncleanly surroundings, the disease becomes extremely fatal under the name of congestive chills. That it did not become more severe or widely diffused here, speaks much for the purity of our water supply, and the general cleanliness of premises.

J. ROSS, M.D.,
Medical Health Officer.

FERGUS.

Medical Health Officer's Report.

In submitting my annual report as medical health officer of the Village of Fergus, I am pleased to be able to say that we have been comparatively free from all contagious or infectious diseases. We have had scattered cases of diphtheria, two of which proved fatal, but there was nothing approaching the nature of an epidemic, the cases occurring at different times and places. Of the typhoid fever cases, there were also two fatal. The milk supply was blamed for a time, but other circumstances made it most unlikely that this was the cause. In fact there was no traceable cause in this way; we are probably correct in attributing the origin of the outbreak to the small amount of water in the Grand River at the time, and the consequently large amount of decaying organic matter left exposed in its bed, an occurrence which the Board could not in good judgment attempt to remedy. Only very few complaints of nuisances have been made; these in every instance have been attended to without delay. Small nuisances may have existed for some time, and if so parties knowing of them are to blame for not reporting them at once, as it can hardly be expected that the Board can know of all such of itself; and were complaints made early the work of the Board could be made much more effective.

I would again call the attention of the Board and Council to the necessity of having dry-earth closets, with regular removal of all refuse and the closing of all cesspools, etc., throughout the village, as it is impossible to have pure water from wells in close proximity to the forbidden holes and closets now too frequently existing. In order that this might not be a tax on the community, I would suggest that the refuse be given to any person willing to take charge of its removal on account of its land value. Arrangements for this should be completed during the winter, so that cleaning out could be enforced early in the coming spring.

W. H. JOHNSON, M.D.
Medical Health Officer.

GLENCOE.

Secretary's Report.

In conformity with the provisions of the "Public Health Act," I beg to report as follows: The sanitary condition of our village, and the health of its inhabitants have been better during this year than in former years.

Our people with a few exceptions are alive to the importance and necessity of cleanliness; and in the early part of the spring make a through "cleaning up" of their back yards. An occasional reminder from our Sanitary Inspector has proved sufficient to keep the sanitary condition of our village fairly good. Although in the adjoining townships there have been several cases of diphtheria and typhoid fever, our village has escaped both.

GEO. M. HARRISON,
Secretary.

MILVERTON.

Secretary's Report.

Early in the spring the Board caused the Sanitary Inspector to call upon the villagers and notify them to clean up their premises. This with very few exceptions was cheerfully complied with.

Several complaints were made with regard to a slaughter-house and hog-pen in connection with a cheese factory, both of which are situated within the limits of the village, but no action has been taken in the matter further than passing resolutions at the sittings of the Board, and the nuisances still exist. The stench arising therefrom during the warm weather is enough to cause a plague.

The Medical Health Officer has not attended a meeting of the Board during the year, nor has he made any returns of the existence of contagious diseases.

There have been several deaths from diphtheria or diphtheritic croup, measles has been in almost every family during the months of September, October and November, and there have been a few cases of typhoid fever.

The mortality during the year has been higher than any since incorporation, in 1881.

W. D. WEIR,
Secretary.

NEWCASTLE.

Chairman's Report.

The Chairman inspected the southern division of the village and found it in a very good and sanitary condition, with the exception of one well, which the owner agreed to clean out. He also ordered the fishermen to bury all entrails taken from fish in the summer months, and also to bury all fish washed up on the beach.

The officers of the centre division states that their division respecting the premises was found very good and clean, and water very good, with the exception of one water closet and one hog-pen, which were put in a sanitary condition.

The officers of the northern division report that the water on two of the premises was very bad. The proprietors of the premises had the wells cleaned out as instructed by the officers, and all other premises that were in an unsanitary condition were properly attended to.

JOHN TRELEAVEN,
Chairman.

 NIAGARA FALLS, SOUTH.
Medical Health Officer's Report.

I have the honour to report that during the past year our municipality has not been visited by any epidemic; that there have been only a few isolated cases of diphtheria, and two cases of measles now in existence. Since the outbreak of small-pox in Buffalo, the compulsory Vaccination Act was enforced by your Board, and two hundred and twenty-two persons presented themselves and were vaccinated by me at the expense of the municipality. The Sanitary Inspector reports the village free of nuisances.

JAS. MCGARRY, M.D.,
Medical Health Officer.

OIL SPRINGS.

Medical Health Officer's Report.

Our village has been free from infectious disease during the past year. There has been one case of typhoid fever, mild in character, but the utmost vigor was used to prevent its spread, which we haply succeeded in doing. The Board of Health here has done good work during the year, yet the village is in an unsanitary condition, this being the first year that anything at all has been done to prevent disease and its dissemination.

A. R. HANKS, M.D.,
Medial Health Officer.

POINT EDWARD.

Secretary's Report.

Notices to the people to put their respective places in sanitary order were issued in the spring, and copies of the pamphlet for checking the spread of contagious or infectious diseases were delivered to each house in the village. The Board has been active during the year, and have taken every precaution for the health of the village. There were twenty-five cases of scarlet fever of a mild type during the winter and early in the spring, from which one death occurred. In every case the dwellings were quarantined, and on removal of quarantine were thoroughly disinfected and fumigated. During the summer months the health of the village was good. There were a few cases of typhoid fever during the fall of a mild nature. Five cases of diphtheria broke out in the latter part of the fall, from which one death occurred. In those cases every house was quarantined, and on recovery of the patients the houses were disinfected and fumigated. At present writing there is not a case of an infectious disease in the village. The School Board, on receiving their notice in the spring, had the public school thoroughly cleansed and fumigated. This was repeated during the summer vacation. The heating and ventilation of the school is on the Smead-Dowd system.

W. MITCHELL,
Secretary.

PORT ELGIN.

Medical Health Officer's Report.

In submitting my annual report for the year 1888, I have pleasure in stating that very few, if any, cases of disease prevailed due to the association of unsanitary surroundings. The usual orders for cleaning up, issued by your Inspector in the spring, were very generally and cheerfully complied with.

During last winter we were visited by an epidemic of measles, which proved to be exceedingly mild. No cases of typhoid fever of the ordinary severe type occurred, notwithstanding the prevalence of fever throughout the Province during the past autumn. A few nuisances were complained of to me, and in all such cases measures were taken promptly for their abatement or removal.

In conclusion, I congratulate you upon the sanitary perfection of the town.

J. A. McARTHUR, M.D.,
Medical Health Officer.

PORT STANLEY.

Secretary's Report.

In compliance with the Public Health Act, I have the honour to report that the Board of Health held two meetings during the year. Early in May the Inspector made a thorough inspection of the village and ordered all nuisances abated, which, I believe, in most cases was done. The sanitary condition of the village for the past year has been first-class, no deaths occurring from epidemic or contagious diseases, from which the village has been entirely exempt up to November, when two cases of typhoid fever of a mild form occurred; they are now convalescent. Whooping cough also prevails to some extent at present, but it is not of a dangerous character. The Medical Officer informs me that he has no report to make.

JAMES GOUGH,
Secretary.

PORT COLBORNE.

Medical Health Officer's Report.

As Medical Health Officer for this village, I have the honour to report as follows:—This municipality has enjoyed immunity from contagious diseases during the past season, which may be characterized in every aspect as one of unusual good health.

Owing to the existence of small-pox in the city of Buffalo, a proclamation was issued with reference to public vaccination. A willing and most creditable response was given by the public, a majority of whom were successfully vaccinated.

J. B. NEFF, M.D.,
Medical Health Officer.

PORTSMOUTH.

Secretary's Report.

In accordance with the provisions of the Public Health Act, I have the honour to report that early in the year the usual precautionary measures were taken for the cleansing of yards, cellars, outbuildings, privy-vaults, etc., which were fairly well complied with under the supervision of the Sanitary Inspector.

At the request of the Board the Council expended a small sum in cleaning out the main village sewer.

There have been no known diseases of a contagious nature, and it is gratifying to state that the general health of the village has been good during the year, consequently the appointment of a Medical Health Officer was not considered necessary.

THOS. KELLY,
Secretary.

SEAFORTH.

Secretary's Report.

Boards of Health have an uphill work in getting the public generally to realize the necessity of any change in the existing and old established state of sanitary matters. Ignorance of the danger to health arising from the ordinary methods of disposing of offensive and refuse matter, coupled with an unwillingness to go to any trouble or expense in the removal of the same, and a disregard of the comfort or welfare of others, are the chief hindrances to improvements in sanitary matters. I am entirely opposed to the system of carrying away unsanitary matter by means of drains. The drains must empty somewhere, and wherever they do empty there the nuisance crops up again.

Everything calculated to endanger health, and which is capable of being converted into manure, should be deodorized by such substances as sifted ashes, dry earth, etc., and carted away to the worn-out fields which exist everywhere.

It would almost seem that the boasted intelligence and advancement of this nineteenth century is hardly able to cope with the sanitation question; our largest cities seem to be little, if any, in advance of the towns and villages.

WM. ELLIOTT,
Secretary.

SPRINGFIELD.

Secretary's Report.

In presenting you this report of the Springfield Local Board of Health, I may say that we have a Board of Health properly organized, and that on or about the 20th of May we made a thorough inspection of the sanitary condition of this municipality, visiting the slaughter-houses, cellars, school house, etc., and wherever we found the sanitary surroundings not as they should be, caused the same to be remedied. We have had but one case of scarlatina and one of diphtheria, both of a mild type. Our Medical Health Officer, Thos. McEwen, M.D., has done much in assisting the Board to carry out the provisions of the Act.

J. B. LUCAS,
Secretary.

STREETSVILLE.

Secretary's Report.

I have the honour to transmit to you the following report of the sanitary work done here during the year, and of the sanitary condition of the municipality:—

Seven meetings of the Local Board have been held during the year.

A general house-to-house inspection of the village was made by the Sanitary Inspector in the month of May. While most of the dwelling houses and premises (as the Inspector reported) were found in a satisfactory condition, still in a considerable number of instances nuisances were met with dangerous to the public health. The most frequent causes of complaint were neglected privy-pits and damp and foul cellars.

Where such nuisances or unsanitary conditions existed directions were given for their removal forthwith, and a subsequent visit was made to the premises for an assurance that the directions had been complied with.

The drainage on Mill street was found defective for want of a proper depth and fall to the ditch, and culverts carrying off the water to its proper outlet. This matter was referred to the council to be remedied.

In September the Board instructed the Inspector to make another inspection throughout the municipality, for the purpose of having all premises therein put in a proper sanitary condition before the approach of the winter season.

The health of the municipality was generally good during the first ten months of the year. There were no cases of infectious diseases during that period, with the exception of two cases of typhoid fever in September, one of which at least was contracted elsewhere, the patient coming home ill with the disease, and the other case was a very mild one. About the first of November there occurred an outbreak of diphtheria in the municipality. There have been eighteen cases and two deaths.

As soon as the outbreak appeared to be extending the public schools were closed, and the steps prescribed by the Public Health Act were taken for isolating persons infected with the disease.

The Sanitary Inspector, too, was sent on a house-to-house visitation throughout the village with instructions to householders to cleanse and disinfect their premises.

There has been only one new case during the last week, and it is believed the progress of the disease has been checked.

In reference to the cemetery question, which has been agitated during the last five years, nothing has been done towards providing a new cemetery in a suitable situation in place of the present overcrowded burial ground within the municipality, and nothing seems likely to be done until the municipal council passes a by-law prohibiting any more interments in the present burial ground.

As to slaughter-houses within the municipality, to which reference has been made in previous reports, the matter is in as unsatisfactory a state as ever. Last April the Sanitary Inspector gave notice in writing to the two proprietors of the premises in which the slaughtering of animals is carried on in this village, requiring them to desist from carrying on the offensive business within the limits of the municipality. The business appears to be still carried on, however.

It is plain that the matter of the overcrowded cemetery and the slaughter-house nuisance, which are two standing dangers to the health of the municipality, will have to be dealt with by the council and the Local Board of Health in a decided and vigorous manner.

WM. J. PINNEY,
Secretary.

THAMESVILLE.

Secretary's Report.

The Local Board of Health for this corporation reports as follows :—

That there has been a regular inspection of all premises, public and private, at various times. The sanitary condition of the village is and has been good during the current year. There has been no infectious or contagious disease in the municipality. There is no Medical Health Officer appointed.

J. DUNCAN,
Sec. L. B. of H.

VIENNA.

Medical Health Officer's Report.

The sanitary condition of this municipality during this summer, as far as it has come under my especial observation, has been good. That no disease, infectious or otherwise, has been prevalent in this village, and that the present state of the health of the community is exceptionally good.

J. H. HOOVER, M.D.
Medical Health Officer.

 WATERDOWN.
Medical Health Officer's Report.

This year, as in the past, we have every reason to feel thankful that we have not been visited with any widespread cause of mortality or sickness. We have had very few complaints of nuisances, and where there were any made the cause has been looked into and speedily remedied.

I am happy to state that the municipal council of the village of Waterdown, so far as I am able to judge, is as anxious and willing to have the sanitary condition of our village kept right as they are to the improvement of streets and sidewalks.

We have had no diphtheria, whooping cough, measles or small-pox. I have had some six or seven cases of scarlet fever come under my notice during the year, all of which were of a mild form. There have been some six or seven cases of typhoid in the village during the year. The cause of the last named disease should at the present time be the subject of your especial attention in this village. It is undoubtedly the result of some disregarded law of health. Among the most prevalent causes I might mention the bad condition and position of privy vaults; the unclean and very badly kept yards, and the great danger that exists from the water and the atmosphere being contaminated by them; decaying vegetable matter, animal matter, manure, pig pens, etc.

I think it but right that the Sanitary Inspector's duties should be to inspect all privy vaults, cellars and back yards at least twice every year in a village such as this; and that he be empowered with authority to see that they are kept clean, and that he be paid well for it.

J. A. MCGREGOR, M.D.
Medical Health Officer.

 WESTON.
Secretary's Report.

I have the honour to present herewith the annual report of the Local Board of Health for the village of Weston.

Our Local Board was duly formed early in the year, and a Medical Health Officer and a Sanitary Inspector appointed. The latter officer made regular visits to the slaughter-houses and hotels, and his reports to the Board were highly satisfactory. A largely signed petition praying that the cemeteries within the limits of the village be closed immediately, was presented to the Board. I was requested to present the same to the village council, which I did. That body passed a by-law forthwith prohibiting burials in said cemeteries after the 31st December, 1888. I am pleased to state that the sanitary condition of the village during the year has been excellent, there being only one case of contagious disease reported. Prompt means were taken and the disease stamped out.

R. H. LEIGHTON,
Secretary.

 WEST TORONTO JUNCTION.
Chairman's Report.

The Local Board of Health was organized in January last, consisting of five members. The village council also appointed a Sanitary Inspector and a Medical Health Officer.

The Board met six times during the year, principally for the purpose of putting the village in a good sanitary condition, which we are pleased to say has been accomplished

through the efforts of the Sanitary Inspector, he having inspected all yards and lanes in the corporation and reports that they are now in a clean condition. We would recommend the council to re-appoint the present Sanitary Inspector, Mr. E. Ward.

Dr. G. W. Clendenan, Medical Health Officer, reports that, fortunately, during the course of the year the village has been exceptionally healthy. A few cases of typhoid fever and diphtheria have been reported, but no deaths among the number. He considers the village in a satisfactory state at present. We also desire to say, with pleasure, that the municipal council have ably assisted this Board during the year, and sincerely hope they will continue in the same course in the future.

JOHN STEWART,
Chairman.

TOWNSHIPS.

ADELAIDE.

Secretary's Report.

I have much pleasure in reporting that the township of Adelaide has enjoyed, as far as I know, a perfect immunity from any disease of an epidemic nature during the present year. Complaint was made to the Local Board of Health that some premises in the village of Kerwood required attention. They were inspected by the Sanitary Inspector and found in a condition not entirely satisfactory. In consequence of further complaints from the same quarter, the Sanitary Inspector was again called upon to inspect the premises, and the remedies suggested by him having been carried out no further trouble was experienced. The Board has met three times during the year. The sanitary condition of the township is good. Nothing else has come under my notice calling for further remarks.

WM. MILLER,
Secretary.

ALBEMARLE.

Chairman's Report.

I have the honour to present herewith the fifth annual report of the Local Board of Health for the Township of Albemarle, and at the same time I have the gratification of being able to report the entire absence from our township of all infectious or contagious diseases during the past year; in fact it has been by far the most healthful period that has been our good fortune to be blessed with since the first inauguration of a Board of Health for this township, only two deaths as yet having been reported. One of these was from old age, and the other from croup. The services of our Medical Health Officer have scarcely been required, and in consequence the Board has deemed it unnecessary to ask him for a report for the year, thereby saving the expense of the same.

ANDREW WEIR,
Chairman.

ALBION.

Secretary's Report.

I have the honour to inform you that the Local Board of Health for the Township of Albion have had nothing to do during the year now drawing to a close. There has not been any outbreak of infectious or contagious diseases, nor has any notice been received of the existence of such diseases. The sanitary condition of the municipality is excellent.

ROBT. EVANS,
Secretary.

ALDBOROUGH.

Medical Health Officer's Report.

In compliance with the statute respecting "Public Health," I beg to report as follows:—

During the winter months a great deal of sickness prevailed—lung affections largely so, but nothing that could be called epidemic. A mild form of diphtheria appeared in the southern part of the township in the spring, being confined to one family; so far as I was informed two deaths occurred. When these cases were reported to me the houses were placarded, and disinfection, isolation and other precautionary measures adopted which prevented the spread of the disease. About the same time measles appeared in one family and the house was at once placarded, with the result that the disease went no farther.

The summer months were ordinarily healthy. Dysentery prevailed to a limited extent through the centre of the township. This may be attributed to the drinking water, which is chiefly surface water and not of good quality.

Diphtheria again appeared last month in the southern part of the township and was of a very virulent type. It was confined entirely to No. 3 school section. Five deaths occurred therefrom, all being young children from two to five years of age. The disease still manifests a disposition to spread. I would strongly recommend to the Board to have this particular school closed till such time as the disease abates. Owing to the excellent drainage in this township, ague, which used to be so common, is now quite unknown. Malarial diseases are not so prevalent as in former years, and typhoid fever, so far as I know, has not appeared this year. Whooping cough appeared once during the year, but with no fatal results. On the whole there was a great deal of sickness during the year. I have reason to think that diseases of a contagious character have not always been reported, and would recommend that all cases of such be reported to the Medical Health Officer.

J. W. BROCK, M.D.,
Medical Health Officer.

AMELIASBURG.

Medical Health Officer's Report.

In submitting this, my third report, I congratulate your Board on the general good health that has prevailed throughout the township during the year, and the almost complete immunity from epidemic or endemic contagious diseases. We have had, it is true, a few cases of whooping cough, which only affected two or three families. Diphtheria visited one family in the eastern part of the township, which unfortunately resulted in two deaths, but no other cases of zymotic diseases are reported.

There has been no progress made in vaccinating during the year. People are so prone to procrastinate in this matter that only an immediate danger from an epidemic of small-pox, or vigorous action on the part of your Board in enforcing the provisions of the Vaccination Act will result in any material advance in this matter.

There have been no reports of any unsanitary conditions made during the year, nor has there been anything of importance to lay before the Board, thanks to the generally sanitary condition.

A. J. FILE, M.D.,
Medical Health Officer.

ATHOL.

Secretary's Report.

In submitting to you the annual report of the Township of Athol, I have great pleasure in stating that the sanitary condition of the township has been good during the year. There have been two cases of diphtheria within the last year, and in both cases the proper notices were placed at entrance to houses. The disease was not carried out of the house in either case.

We have no Medical Health Officer or Sanitary Inspector.

W. MOORE,
Secretary.

BARTON.

Chairman's Report.

In presenting our annual report we are gratified to state that for the greater portion of the year Barton has been very healthy, but during the last two months several cases of typhoid fever took place just outside of the eastern limits of Hamilton. Two deaths were reported. There have been three cases of scarlet fever, but all seemed to be of a light form. A very few cases of diphtheria have been reported.

The Sanitary Inspector has inspected private houses, slaughter houses and yards connected therewith, piggeries, tallow rendering establishments and oil works, fertilizing works, etc., and he reports that the slaughter-houses in most cases are reasonably clean; but as parts of the township are thickly populated, and as at times the butchers do not clean up properly after killing, thereby causing bad smells, we would recommend that the slaughter-houses and pigs in those places and along public roads where there is much travel, be removed to a distance of seventy yards from such roads, and not nearer than seventy yards to any dwelling house, school house or workshop.

The fertilizing works of Messrs. Rowlin & Co., and the tallow-rendering establishment of Mr. A. A. McKillop have caused considerable complaint from the residents of the neighbourhood. Although in both cases they have steam-tight iron tanks, and the exhaust pipes run into the waters of Coal Oil Inlet, yet the smell sometimes is very bad. Both claim that it is impossible to carry on their business causing less bad smells than there have been. We are of the opinion that if the proprietors of these establishments cannot carry on their business without causing so much annoyance to the neighbourhood, application should be made to the courts to have the business put a stop to.

There have been circulars sent to the residents of the township requesting them to comply with the Vaccination Act.

Night soil has been permitted to be brought into the township during the summer, the parties in most cases covering it with earth. In two or three cases proper care was not taken of it, and the parties receiving it were at once notified to abate the nuisance, which was complied with.

JOHN W. GAGE,
Chairman.

BEDFORD.

Medical Health Officer's Report.

It affords me much pleasure to be able to state that the duties of the Board of Health and Health Officer for the past year have been merely nominal, owing to the sanitary condition and general good health of the people.

There have been no contagious or zymotic diseases, except a few cases of measles and two or three isolated cases of typhoid fever, which occurred during the month of March.

A. W. DWYRE, M.D.,
Medical Health Officer.

BERTIE.

Medical Health Officer's Report.

In submitting my annual report for the present year, I am pleased to be able to state that our people have had a favourable year, and that no contagious disease has gained a foothold, though we have been threatened with small-pox, which has existed on our border for several months, and isolated cases of diphtheria, typhoid fever and measles have occurred during the year; but at the present time I am not aware of a case of either in the municipality.

It is my pleasing duty to report that the Council has been induced to take action toward bringing into force the Act in regard to public vaccination, and that we have now four public vaccinators who are authorized to vaccinate all free of charge, and that all the public schools have been visited by them, and that most of the pupils attending were vaccinated.

Reports will be made later in the year giving the number vaccinated, when I believe it will be seen that the most of our people have complied with the requirements of the Act.

I trust that our efforts to prevent the introduction of small-pox from Buffalo may prove successful, and that we may enjoy another year of immunity from contagious diseases.

N. BREWSTER, M.D.,
Medical Health Officer.

BEVERLEY.

Secretary's Report.

In presenting to you my fifth annual report of the Board of Health for the township of Beverley, I have only to say that the Board was appointed and held its first meeting in June last. The business of the first meeting was simply to organize and prepare for action when necessary. The Board meets to-day to wind up the business of the year. The number of deaths for the year thus far will be about fifty, one of typhoid fever, two of croup and two of whooping cough. About twenty of the total number were over the age of sixty years. I received two notices from Dr. Ross, of Dundas, of cases of diphtheria in a family in the south-east part of the township. I caused the usual notice to be posted up at the house. The patients recovered all right. On the whole I think the health of the township during the year has been fully as good as the average.

W. McDONALD,
Secretary.

BINBROOK.

Medical Health Officer's Report.

In accordance with the requirements of the statute I beg leave to submit my report. I am happy to say that the health of the township of Binbrook during the present year has been very good.

I congratulate the Board on the apparent—I feel assured I may say real—success attending the means taken by you to have the privies and wells in the different school sections of this municipality cleaned and put in a proper condition. I am able to report that there has been no epidemic disease among our school children after that work had been attended to. I am also glad to notice a growing feeling among private individuals of the necessity of having proper sanitary arrangements in and about their premises; and more, I feel confident their health has been sustained and improved by their attention to these important matters. It is to be hoped that many others may be stimulated to make like improvements.

In the erection of buildings in the country great attention should be paid to the following points:—

1. Proper ventilation.
2. Better drainage from cellars and foundations.
3. Privies further removed from wells and dwellings, so that there is no danger of the drinking water, or even that for ordinary purposes, being polluted.
4. Privies so constructed as to be easily cleaned out at proper intervals, and the use of the dry-earth system in the same.

There have been a couple of cases of typhoid fever, but by strict precautions and the free use of disinfectants the spread of the disease has been prevented.

In the early part of the year there were a number of cases of scarlet fever, measles, and two cases of diphtheria, all of a mild type.

In conclusion I would like to say to the Board that they must expect some opposition to the carrying out of their plans; it will take time to educate the people to a sense of their responsibility in these matters of sanitary reform.

I think it would be well to hold public meetings at a convenient time in the year, where the laws or statutes of the Public Health Act could be discussed, and all enlightened in regard to their duty in these matters.

M. J. MULLOCK, M.D.,
Medical Health Officer.

BLANSHARD.

Medical Health Officer's Report.

We have reason to congratulate ourselves that the health of the township has been so good during the past year. Diphtheria broke out in several places in the municipality during the year, and resulted fatally in several cases. Typhoid fever only appeared in two instances, one of the attacked died after a week's illness. Measles spread from house to house and from section to section during the spring months, but the epidemic passed over without being the cause of a single death. In a few cases very severe lung trouble resulted, threatening the lives of the sufferers. This disease is looked upon by the community at large as a very harmless epidemic disease, but facts prove the contrary, and those looking on this disease as such are labouring under a serious delusion.

It would be in the interest of the public if all medical men would comply with the requirements of the Health Act, and notify the local Medical Health Officer of such cases of contagious and infectious diseases as he may be called upon to attend.

The welfare of the community would be very much advanced if all the children attending the public schools who have not a proper vaccine mark, were vaccinated at the

expense of the municipality. Inspection proves that a great improvement has taken place in the condition of the schools and their surroundings, but still there is much room for sanitary reform.

It has been urged by the central authority (and I think with very great reason) that a stricter supervision should be kept on slaughter-houses, with regard to the cleanliness of the places, disposal of the offal, and the slaughtering of diseased cattle; also regarding milk supply to factories, and the sanitary condition of such factories.

Hoping that we may be able to advance the interest of the public health to a greater degree than we have done in the past.

WILLIAM IRVING, M.D.,
Medical Health Officer.

BLenheim.

Chairman's Report.

In presenting you with our yearly report we have little to remark that will be of interest. General good health has prevailed over our township.

The members composing our Board are located conveniently in various parts of our large township, and each looks pretty well after his own section. During spring the Board formed committees consisting of two members each, and visited the cheese factory, school houses and slaughter-houses of our township, all of which were found in a very cleanly and satisfactory condition.

There was one case of diphtheria and one of scarlet fever reported from the south, but proper disinfectants and isolation soon stamped out the disease. Since our Secretary wrote you last, we have had a report from the north of the township of some diphtheritic cases, which happened some time ago but were only lately reported. Our reeve was in almost daily attendance on these cases, the best of disinfectants were used, the children were kept properly isolated, and the disease, although proving fatal to five children in this family, did not spread beyond it. The cause of the disease was supposed to be a defective drain. The same report contains reference to another family in which three cases are reported, two of them being fatal. One, a child 18 months old, died of septicaemia, the result of nasal diphtheria, and another one died some weeks after from paralysis. The disease did not spread further.

W. R. PENTLAND, M.D.,
Chairman.

BOSANQUET.

Medical Health Officer's Report.

Acting upon the instructions of your Secretary I inspected the cheese factories and slaughter-houses in the township, and found them clean and in a good sanitary condition. This year the township was visited by an epidemic of influenza, making the death-rate higher than it is usually. Scarlet fever of a severe type broke out in some parts of the township, but did not spread owing to the precautions taken to isolate the cases, and keeping them out of the schools for a long time after they were convalescent. There were a few cases of diphtheria this year. I would call the Board's attention to the fact that small-pox has broken out in Sarnia, and few of the children of the township are vaccinated.

W. A. MUNNS, M.D.,
Medical Health Officer.

BROCK.

Medical Health Officer's Report.

Our report for this year, 1888, will of necessity be brief, as but little in the sanitary line has required the attention of the Board. Our municipality is to be congratulated on its comparative exemption during 1888 from epidemics, there being only about five cases of diphtheria and two deaths; fifteen of typhoid and two of scarlatina reported. A mild type of measles spread over the whole district, but it was so mild that a physician was rarely required, and consequently but few cases were reported.

JAMES McDERMOTT, M.D.,
Medical Health Officer.

BROOKE.

Medical Health Officer's Report.

Typhoid fever and diphtheria are ever on their rounds—a case here, several there, and a severe endemic yonder. This appears to be the condition of things in all the older sections of our country and of other countries as well. During the year there have been a few cases of these diseases in the municipality, but, so far as I am aware, no fatal case of either. There have been also several cases of scarlatina, but no deaths. A strange and prevalent delusion exists in regard to scarlatina. Most people believe in the existence of two distinct diseases, having some points of resemblance; one they call scarlatina, or “scarlet rash,” the other scarlet fever. It should be widely known that medical authorities recognize no such distinction. Scarlet rash, scarlet fever and scarlatina are but different names for the same disease, the last mentioned being the technical or scientific name. The same poison produces all the symptoms and variations observed. When the disease is mild the symptoms are few and simple; when it operates more powerfully, these are more severe and marked. The same may be said of diphtheria. This disease is often so mild as to pass for a very mild “sore throat.” These “walking cases” of both diseases do more to spread infection than the more severe cases, because unsuspected. Even typhoid fever has its mild or “walking cases.” A knowledge of these facts would lead to greater caution on the part of the more prudent, and greatly tend to limit the spread of infectious diseases.

In its short history the Provincial Board has done a great work. The people are being gradually educated to the importance of observing certain laws and regulations. Even an imperfect observance of the law has been often efficacious in limiting and stamping out the infectious diseases. The value of isolation and disinfection is just becoming known and appreciated; so that the time is not far distant when officers of the law will no longer meet with opposition, but on the contrary find their duties easy and pleasant to perform, because of the aid and willingness of a well informed and rational people.

Within the area known as the St. Clair district, malaria, of course, prevails to some extent at all times and places, but in this section it is never of a malignant type. Even in this respect great improvement has taken place during the past few years. This change is chiefly due to the extensive system of drainage undertaken by the municipality at the cost of much trouble and money. The primary object was the reclaiming of several square miles of rich, low-lying lands within the bounds of the municipality, but the great water-courses thus constructed could not fail to exercise a highly beneficial sanitary influence.

Sanitarians tell us that the greatest danger to health and life is found in the water we drink. Of the truth of this there can be no doubt. The greatest danger to health on the farm, therefore, is the well. Too much stress cannot be laid on this fact. The carelessness often displayed in the construction of wells is truly amazing. No attempt is

made at excluding surface water, and not infrequently they are found in the barn-yard, or in close proximity thereto. And yet people will be surprised if people sicken and die, or one of the children is suddenly prostrated with diphtheria! Medical men should make the construction of wells and the contamination of water something of a study, with a view of spreading information regarding a matter so directly affecting the health and the lives of the people.

Another, though a lesser source of danger on the farm, is the running stream. No matter how limpid and inviting to the thirsty, it is the sure carrier of disease and death. In the early times when no one lived on the "banks beyond," the water in the "babbling brook" was pure and wholesome; but the aggregation of population has wholly changed the conditions. The banks which were then in virgin purity, are now covered with towns, villages and farm-houses. From these banks now issue into the running stream town sewerage, barn-yard drainage, and every kind of filth. As if this were not sufficient to fill the bill of abominations, the stream is made the common receptacle of the dead carcasses of all manner of beasts! Who can wonder that death is found in the sparkling brook? Not a summer passes but horses and cattle perish along the course of the Sydenham from dysenteric fever, caused by the impurity of the water. Nor are human beings wholly exempt from this danger, especially in seasons of drouth, as the following will show. Several members of a family were almost simultaneously attacked by a mysterious disease, marked by fever, a pustular eruption, (some of the pustules assuming the size of boils) and a marked tendency to pleuro-pneumonia. Two deaths took place, one of them directly due to this cause, and the other at least remotely so; while others of the family were in imminent danger. The surroundings every way appeared excellent, indeed faultless. The well was so placed and constructed that contamination of its water was well nigh impossible. But, unfortunately, it had gone dry. The want thus created was supplied by pouring into it several barrels of clear Sydenham water, there to be cooled and pumped up as needed for all household purposes. What was hitherto enveloped in much mystery now became clear, and needed no further research.

The conclusion to be drawn from these illustrations, as well as from other incontrovertible evidence, is this: the water of streams running through a populated country is impure beyond description, and unfit for the use of either man or beast. This fact should be everywhere known and proclaimed. Let no one be deluded into the belief that cold, winter weather purifies such waters, or that the impurities are lost in the formation of ice. The farmer, no less than the residents of small places, must depend upon wells and cisterns. When these are well guarded against contamination nothing more remains to be done, and nothing more is desired.

ANGUS MACKINNON, M.D.,
Health Officer.

BRUCE.

Medical Health Officer's Report.

In presenting this my annual report, I have pleasure in stating that the sanitary condition of the township has been fairly good during the year, but not as free from contagious and infectious diseases as last year.

Scarlet fever prevailed to a considerable extent, though not proving fatal in any case as far as I know.

Measles of a mild type existed to a limited degree. Diphtheria and typhoid fever made their appearance in different localities without any fatal results.

In conclusion I would call the attention of the Board to the necessity of insisting on physicians attending contagious or infectious diseases within the municipality, notifying the Secretary of the Board of Health of the existence of such diseases.

A. MACKAY, M.D.
Medical Health Officer.

BURFORD.

Medical Health Officer's Report.

I have to report returns of whooping cough one case, recovered; typhoid fever, eight cases, five recovered; diphtheria, sixteen cases, fourteen recovered, two died; measles one case, result not yet reported to me; and of scarlet fever four cases, three recovered and one died. So far as I can judge the township is free at present from all diseases to be reported to me.

Nothing that I am aware of has been done regarding inspection of milk supply. A late medical congress condemned impure cows' milk as the transmitter of many diseases, as typhoid fever, consumption, etc. With such medical reports concerning the unwholesomeness of a great deal of the milk, and of the water that city humanity is furnished with, can it be any wonder that in cities the Scott Act is not popular?

In times when Ontario may be threatened with a serious epidemic, I should judge it advisable that some means satisfactory to the banks and the public be adopted, that bank bills be disinfected in a way which, while thorough does not injure them, or that they be replaced by the banks by new ones; for, by the circumstances of their use, they are in a most favorable position for carrying many diseases, and in large quantities of long-used bills the odor is very powerful, complicated and unsavory.

I was notified that in one instance where a house was placarded with the Board of Health notice for scarlet fever, the notice was taken down because the parties whom it was supposed had caused the fever had not their house placarded in Brantford. It is supposed to damage the trade of a city to inform the public of an infectious disease in its midst, hence the tendency in *some quarters* to suppress such information as much as possible.

ROBERT HARBOTTLE, M.D.

Medical Health Officer.

CALEDON.

Medical Health Officer's Report.

I feel considerable satisfaction, at this our annual meeting, that we have only once during the past year been called on as a Board to act in any emergency; this itself being almost a guarantee of the public health of the municipality. That emergency meeting was called by me to get advice of the Board on an important question, which arose in the following manner:—

On the morning of the tenth of January last, the head master of Alton Public School, came to my office saying that one of his little boys was sick and that he was afraid it was scarlet fever, and that he wished me to see him before school hours and let him know whether he (the teacher) might be able to attend school. His suspicions proved correct—the boy had scarlet fever, and I was forced to isolate the family by keeping the teacher away from school.

The other teacher, a lady, boarded at his house, and thus we were forced to close the school forthwith. Then came the vexed question of how long must the school be closed. A great number of the ratepayers were dissatisfied, claiming that such rigorous proceedings were unnecessary; others again contended that if through any negligence on the part of the trustees or Medical Health Officer their children contracted scarlet fever, they would resort to legal proceedings.

I then felt that it would be wisest to call a meeting of the Board to advise me in the matter and take the responsibility. The Board advised the trustees that the lady teacher should change her boarding house, first thoroughly disinfecting her clothing, and after being isolated for a week she might then resume her duties, and with an assistant manage the school.

Regarding the head master, we advised that after three weeks isolation and thorough disinfection of house and personal clothing, under supervision of the Medical Health Officer, he might then take charge of the school; the result was that no other cases followed at least in that section.

A difficulty regarding school matters presented itself at Credit Forks, in March, 1888, during the period of the local epidemic of measles and whooping cough in that village. Five deaths in three weeks had occurred directly or indirectly due to whooping cough, and the public became alarmed. The trustees after consulting with me decided to keep all children suffering from whooping cough or measles from attending school, as well as children belonging to families who were suffering from it. Then arose the difficulty; the teacher's boy, it was alleged, had whooping cough, and the trustees notified me to call at the house and examine the boy, but the teacher refused to have the boy examined, saying the trustees had acted in an arbitrary manner and that he would resent with force if necessary. Reasoning or explaining matters proved useless, so I was constrained to take my leave without having accomplished the required examination. However, as usual there was a "power behind the throne," for the trustees notified him that the school was closed and that the said closing being due to his perversity, his salary would be suspended. Whether this or the copy of the "Health Act" I sent him caused his repentance I cannot say, but he soon wrote me apologising for his action and asking me to come and examine the boy, which I did. I found him suffering from whooping cough and measles, and as he got well, the teacher after due disinfection, was allowed to open the school and I was much pleased at the matter being settled without resorting to legal proceedings. In this connection I might say that a good many teachers are not aware that it is their duty to notify the Medical Health Officer of any child attending school in whose family there exists any contagious disease; and it might be well to have the clause relating thereto printed along with our health by-laws and sent to each school in the township.

At our last annual meeting it was decided to take some steps regarding the unsanitary condition of "Credit Forks." Accordingly, our Inspector made a tour of inspection in May, and reported to me that matters were even worse than he had anticipated, the principal trouble being the close proximity of the privies to the houses, on account of the small size of the building lots, and the cesspool immediately in the rear of the house.

Mr. K. Chisholm, being landlord of the said houses, I wrote him requesting him to make some arrangement whereby the privies could be removed to a greater distance from the houses. Mr. Chisholm did not see fit to take any active steps in the matter, and I had resolved to report forthwith to the Board, when I discovered that the talk and discussion about the matter had aroused the inhabitants to clean out privies and cesspools, and thus the required object was accomplished in another way. The water supply there has also been improved by cleaning out the springs and protecting them from cows and pigs, which used to have access to them. The general result is that since these steps have been taken there have been no infectious diseases, and there has been a marked decrease in non-contagious diseases.

A very violent type of scarlet fever was imported here from Bracebridge, in the following manner:—

A plasterer, whose family were living in Alton, had been working in Bracebridge during the winter; he was taken down with a severe illness, the nature of which we did not at that time know but which confined him to bed for many weeks. As soon as he had fairly recovered he came home to his family, and not having had any conversation with him on his return, I was not aware of the nature of his illness. However, about a week afterwards, I was called to see their little girl, the youngest of the family, and found her suffering from a violent attack of scarlet fever, from which she died in a few days. The following day three other children of the same family were taken down with the same disease, and though their illness was long and tedious they finally recovered.

These cases occurring so soon after the father's return, and at a time when there were no other cases in the neighbourhood, aroused my suspicion and I questioned him regarding his illness. He said that the doctor told him he had diphtheria, but stated that in the house where he boarded a child had died from a severe sore throat, accompanied by a rash which he said was exactly like the rash his children had. I then asked

him if his clothing had been disinfected, and he said that nothing had been said to him about it, and he was not aware that it was necessary.

Here was a father returning to his family after a protracted and painful absence, and they received him joyfully, glad after many weeks of uncertainty and suspense to see his face again, not knowing that he had brought with him the germs of a disease that would place one of the little darlings that ran forth to meet him in her grave, three others on a bed of long and painful suffering, and bring the family to the brink of starvation. By strictest isolation and thorough disinfection not another case occurred. No one was allowed to leave the house, everything necessary being conveyed to them by a messenger who never entered it. I may be pardoned for relating this case at length, but I feel that such tragedies as these should be prevented, and when we know that disinfection and isolation will give absolute protection, we cannot help feeling that the neglect of these precautions is almost criminal. Perhaps the physician in attendance was not the Medical Health Officer and may have neglected to report the case. Thus we see what lives are lost and what suffering is caused by the neglect of physicians to report infectious diseases to the Medical Health Officer, or to take it upon themselves to carry out a proper system of disinfection.

One can easily imagine that many other cases have arisen through contact with this person in a railway carriage, and scattered throughout the country.

During the latter part of August and September, the village of Alton suffered from a local epidemic of typhoid fever and several cases of malarial fever, but in this case the cause was easily accounted for. A large mill-pond was emptied for repairs, and several feet of black mud was left steaming in the heat of the sun. In this matter I felt that all I could do was to urge the owner to complete the repairs as quickly as possible.

The health of the farming community has been remarkably good, excepting in cases where they had neglected to clean out privies, wells or cellars; and in such cases several families have suffered from typhoid fever and diphtheria.

I have refrained from giving any tabulated report, as the physicians' reports to me have been incomplete and might be misleading. I have endeavoured to induce all physicians practising in the municipality to report to me before the fifteenth of November, a list of the contagious diseases occurring throughout the year, but with very unsatisfactory results. In the absence of these reports we must be contented to labour on under this difficulty, and do all we can to further the interests of the public health without them.

JAMES ALGIE, M.D.,
Medical Health Officer.

CALEDONIA.

Secretary's Report.

In compliance with the Public Health Act, 1884, I have the honour to report that at the first meeting of the municipal council a Local Board of Health was appointed, with D. I. McIntosh, M.D., of Vankleek Hill, as Medical Health Officer.

It is with pleasure that I can report that the general health of the municipality during the past year has been better than for some time past.

Two cases of diphtheria occurred in a family in the month of June, one of which proved fatal. There were also several mild cases in another family this autumn. Proper care having been taken by the inmates of the houses in which the sickness occurred and by the physicians in attendance, the disease was prevented becoming serious.

With this exception, the municipality was completely free from contagious and infectious diseases during the year.

JOHN DOWNING,
Secretary.

CAMBRIDGE.

Medical Health Officer's Report.

During the past year our township has been pretty free of disease, except of fever and a few cases of diphtheria and scarlatina.

The cases of fever throughout our district were mild. Diphtheria and scarlatina were the only diseases that have brought many children to death.

As you are aware, all our trouble came from Casselman. The causes are, want of drainage, the density of population, and the impurity of the well-water. I must congratulate you for your action in the present year, and in the meantime on the good sanitary condition of the township, as well as with having educated people up to immediate compliance with your orders without the law's interference.

JULES M. BOILEAU, M.D.,
Medical Health Officer.

CARADOC.

Secretary's Report.

In conformity with the Public Health Act, I have to report as follows :—

The Board of Health have the satisfaction of reporting that the general health of the municipality has been very good during the year ; no epidemic has been very generally prevalent.

The Sanitary Inspector reports the following cases of epidemic diseases : Six cases of typhoid fever, one of which proved fatal ; four cases of diphtheria, two of which proved fatal ; a number of cases of whooping cough, none of which proved fatal.

He also, by instructions from the Board, made an inspection of milk vendors premises during the summer, and found them clean and well kept and the cows in a healthy condition. He also tested the milk and found it up to the average of pure milk ; said test was made after the delivery waggons had proceeded on their rounds, the vendors having no previous notice.

The present sanitary condition of the municipality is very satisfactory.

M. McGUGAN,
Secretary.

CARTWRIGHT.

Secretary's Report.

In pursuance of the Public Health Act, 1884, I beg to submit the following report :—

Our township during the year has been comparatively free from infectious or contagious disease. The local practising physician reported three cases of typhoid fever, one case on the fourth of August and two cases on the first of September, but by the prompt action of your Local Board in isolating the premises where the disease existed, the spread of the disease was happily averted.

At a meeting of the Board held on the 2nd day of June, a committee was appointed, consisting of the chairman, the secretary, and Mr. R. H. Prust, to examine all wells, cellars, yards and privies, where there was danger of filth accumulating, in the village of Blackstock, and to take such measures as authorized by the Public Health Act to have all such premises thoroughly cleansed, and put in a proper sanitary condition.

The committee so appointed forthwith proceeded to inspect said premises, and with a few exceptions found little to complain of, and such exceptional cases were at once cleansed and the proper remedies applied.

On the whole I am pleased to state that your township is at present free from contagious disease.

WM. LUCAS,
Secretary.

CAYUGA, NORTH.

Secretary's Report.

The sanitary condition of the township of North Cayuga, during the year 1888, has been in a good state generally.

There has been one case of diphtheria and one of typhoid fever, but in neither case has the disease spread.

There was a report of one case of small-pox being in the township, but the report turned out incorrect. There has been nothing of the kind in the township so far.

JAMES MITCHELL,
Secretary.

CHAPMAN.

Secretary's Report.

The health of the township at large has been generally good.

In the month of June the village of Maganetawan was inspected, and all manure and other garbage was removed, but not without some opposition on the part of householders.

The carcasses of three animals were buried by order of the Board at an expense of \$13.

Dr. Walton, of Magnetawan, has been instructed to vaccinate all residents of this township at a fee of 25 cts each.

The Board has held three meetings. At their last meeting a drain was ordered to be made through the lot owned by R. Geasley, in Magnetawan, at a cost of \$2.

The Board reports the township generally in a good sanitary condition; the hotels are clean; the yards dry and well drained, and manure frequently removed.

T. G. PEARCE,
Secretary.

CORNWALL.

Medical Health Officer's Report.

Owing to the ready compliance of parties concerned with the demands of the Board of Health, the duties of its officers are now with a few exceptions comparatively light. Besides the thorough cleansing of premises insisted upon early in the season, very few changes were asked for and these few were willingly and quickly complied with, so that at present the district is in a most satisfactory condition. Slaughter-houses were put in a thorough sanitary condition early in the year, and so maintained during the summer; complaints on that score were a rarity.

School houses were properly looked after by teachers and trustees, at the instance of members of the Board in whose district they happened to be.

The number of contagious diseases of all kinds in the district was much less than in former years. Cases of diphtheria were isolated and their malignancy was not at all great, except in a few instances. Typhoid fever was not nearly so prevalent, and in the most crowded parts of your district the cases were surprisingly few. Scarlet fever, measles, etc., were scarcely known.

I must congratulate the Board upon the very satisfactory state of things, and the members upon the efficient way in which they have done their duty, none too pleasant. I would ask you to continue to enforce the regulations with a firm hand early in the season, and the fruits of your work will continue to be apparent.

H. J. HARRISON, M.D.,
Medical Health Officer.

CROSBY, NORTH.

Secretary's Report.

Our Board met for the first time for the transaction of business on the 16th of April, and instructed the Sanitary Inspector to examine the slaughter-houses and cheese factories and report as to their sanitary condition.

His report showed that the cheese factories were kept according to the law, but the slaughter-houses were not the right distance from the public street and not kept in a proper sanitary condition.

Another meeting was called on the eleventh of June, when the slaughter-houses were ordered to be closed, which was done at once, and a new one erected at a proper distance from any habitation. They have been since kept in a proper sanitary condition.

The present year has been a very healthy one. There has been no contagious or infectious disease, except a few cases of measles and scarlatina of a very mild type, and the sanitary condition of the township is good.

JOHN McGUIRE,
Secretary.

CROWLAND.

Chairman's Report.

The Local Board of Health for the township of Crowland beg to present this their annual report for the year 1888. The number of cases from infectious diseases up to date, as reported, is as follows: Scarlet fever four, all in the family of Andrew Cruickshank. Three cases broke out in January last, and all recovered under the treatment of Dr. Shaw, who never informed me of its existence until weeks afterwards; consequently the house was not placarded. Another case in the same family occurred during last month, under the treatment of Dr. Shaw, who notified me without delay. I placarded the house; patient got well. I wrote to Dr. Shaw in May about his neglect in January last; he apologised and stated that the house was afterwards properly cleansed. There were four cases of diphtheria. The first case was in the family of Walter S. Elliott, under the medical treatment of Dr. Park, who notified me of its existence. I forthwith placarded the premises. Shortly after the child recovered. The second case occurred in the family of Edwin Morris, under the medical care of Dr. Burgess, who immediately notified me. I forthwith placarded the premises. The child recovered. The third and fourth cases occurred in the family of David Shafer, under the medical care of Dr. Park, who notified me. I had the house placarded forthwith. Both of the children died.

I beg to state that the medical men, Dr. Burgess excepted, have shown great remissness in duty, in not reporting to me forthwith of the existence of the above cases.

There were no complaints sent to the Board during the year of any case of nuisance, or of anything existing prejudicial to the public health of the municipality. The degree of health prevalent in the township during the year has been exceptionally good.

W. H. BIGGAR,
Chairman.

DALHOUSIE AND SHERBROOKE NORTH.

Secretary's Report.

I am happy to be able to report that our townships have been during the year now nearly past in a fair sanitary condition, there being only one case of typhoid fever which was contracted in Kingston; the patient fully recovered. Each member of the Board is taking an active part in enforcing the law. A cheese factory and hog-yard at Elphin Corners, complained of, was visited by the Board of Health and found in a very bad state of repair and unsanitary condition. The parties were notified to at least partially abate the nuisance, but the instructions were not complied with till an action at law was threatened. We think the factory should be removed.

GEO. CAMPBELL,
Secretary.

DEREHAM.

Medical Health Officer's Report.

The season has again arrived when I am required by law to report on the sanitary condition of this municipality for the present year, and in doing so I am pleased to state that the people of this township, at least that part which is under my jurisdiction, have abundant reason to be thankful for the small number of cases of zymotic diseases that have occurred during the year.

Early in the season a few cases of scarlatina of only moderate severity occurred, but owing to due precautions being taken the disease did not spread to any extent.

During the summer months a small but severe epidemic of diphtheria visited part of this township, but owing to rigid care and isolation the epidemic did not become so general as it would otherwise have done; and fortunately the mortality was small, as I have only heard of two cases proving fatal. As none of the physicians have reported their cases to me, I regret that I am unable to report the exact number of cases that occurred. I may state that twenty-six cases came under my own care, the ages of the afflicted ones ranging from the child of three years to the adult of forty-six years, and in severity it varied from the rather mild type to the severe putrescent form, but all made a good recovery; and as I believe in giving honour to whom honour is due, I wish to attribute a very large share, perhaps the largest share, of the credit to excellent nursing, for I am pleased to state that never since I commenced practicing have my instructions been so rigidly observed and carried out, and the medicines so punctually and promptly given, both day and night, as during the epidemic to which I have just referred.

Owing to the growing intelligence of the people they now at once recognize the gravity of the situation and the treacherous nature of the disease, and obtain medical aid without delay; and for these reasons I think I dare venture to predict for the future a smaller rate of mortality than during the past.

There were a few cases of diarrhoea and dysentery among the children during the hot summer months, but not nearly so prevalent as in former years, and I am not aware of any deaths occurring from those causes.

Typhoid and malarial fevers have not, so far as I am aware, prevailed to any great extent in this municipality during the year.

In this immediate vicinity we have had fewer cases of fever than in any year during the past ten years.

I regret to state that the provisions of the Public Health Act, concerning the cleaning out of wells are not receiving the attention which their importance demands.

H. MINSHALL, M.D.

Medical Health Officer.

DORCHESTER, NORTH.

Secretary's Report.

The Local Board of Health of the municipality of North Dorchester are very much pleased to be able to report that the sanitary condition of this township is favourable, and the inhabitants are willing to carry out the suggestions of the Board as reported last year. You can better judge of the health of the inhabitants of this municipality after reading the number of cases of infectious diseases reported by the physicians in the township. Two cases of scarlet fever, and eight of measles for the year 1888. The Board is in working order.

D. P. AYLSWORTH,

Secretary.

DUMFRIES, NORTH.

Medical Health Officer's Report.

It is a gratifying feature of my experience to find more indications of awakened interest, and willing co-operation in all inexpensive changes, that may conduce to the promotion of health and the prevention of disease. I have again visited the schools of the township, and though a few of the pupils have been absent from illness, there have been no epidemics of disease interrupting any of the schools. It has been difficult to obtain reliable information relating to the health of the schools. The Department of Education have, however, proposed blank forms for teachers' register, by which an accurate record will be kept of all children absent from illness; and also blank forms to be filled up and sent by the teachers to the Medical Health Officers, giving definite information relating to the health of the pupils. I am pleased to report an improved condition of the water-closets, though in a few instances regular and efficient disinfection has been neglected. I have supplied every school with copies of pamphlet No. 15, issued by the Provincial Board of Health for checking contagious diseases. The floors of most of the school rooms were not found in the most desirable condition. The prevailing pallor of school children from foul school air, is but too often the index of depraved blood and retarded physical development: and this, too, be it remembered, at a time of life which prevents the attainment of sturdy, robust maturity. I have done what I could to minimize this evil, without contemplating the radical changes involved in the erection of better structures and the adoption of the more costly modern methods of heating and ventilation.

In company with Inspector Detwiler, I visited one of the cheese-factories where complaints had been made in regard to the "hog nuisance." The proprietor had, however, moved the hogs to a safe distance from the factory and private dwellings at considerable personal inconvenience. To abate this nuisance it is to be hoped that all factories will adopt the suggestions made by the committee appointed to investigate this matter, viz.,

the laying of pipes to convey the whey to the hogs at safe distances from the factory, private dwellings and public highways. The evidences of cleanliness within the factory, with its tight floor and ample means for surface drainage, were quite satisfactory. I obtained and examined forty-two specimens of water used in cleaning the milk-cans that convey the milk to the factory, and only two of them were found objectionable, I presume from neglect in regularly cleaning the wells. Your Inspectors inform me that the other cheese-factory is in a satisfactory condition.

Your Inspectors have jointly visited the premises of all milk-vendors in the municipality, and carefully noted the condition of all the cows, the unwholesomeness of their food and water, the care taken of milking utensils, and all matters essential to the sale of pure wholesome milk. They have granted license to seventy-two vendors of milk, in accordance with the statutory conditions providing for the same. In this connection I would suggest that all licensed vendors should indicate their license upon their public delivery waggons, as a further assurance to the public that they have complied with the law relating to the sale of milk.

The Inspectors have repeatedly visited the slaughter-houses during the year and reported them generally in a satisfactory condition, which is much more than could be said in previous years. They assure me that a decided improvement has been effected since inspection was instituted in the management of slaughter-houses. They have granted licenses during the present year to eight houses. They have found their duties in this direction somewhat onerous. In my opinion these institutions will bear close watching, not only on the part of the inspectors, but by all owners, especially during the hot months, so great is the tendency of flesh to become unfit for use by the speedily acquired unsanitary condition of all slaughter-houses. I take pleasure in bearing testimony to the efficient services rendered by your Health Inspectors, and again congratulate this Board upon the exemption of the entire municipality from almost all preventable diseases during the year.

J. B. LUNDY, M.D.,
Medical Health Officer.

DUMFRIES, SOUTH.

Medical Health Officer's Report.

It is with pleasure that I submit to you my annual report. We ought to be thankful that during the year past the township has been to a great extent free from the more virulent forms of infectious diseases. There has been a much smaller number of complaints than usual, and these have been dealt with in such a manner by the Board that the people must feel they have a protection in sanitary matters on which they can rely. The Board has accomplished a great deal of good for the township, and is still striving to rectify matters prejudicial to the health of the community. Considering the improvements that have been made in this direction, together with the good feeling existing between the Board of Health and the residents of the township, I think it quite a natural conclusion that in the future the labour of the former will be very much lightened. I would suggest that care should be taken to keep the school house clean and well ventilated, and that vaccination be strictly enforced.

E. C. KITCHEN, M.D.,
Medical Health Officer.

DUNGANNON AND FARADAY.

Secretary's Report.

Last fall and winter this municipality was visited by a malignant type of diphtheria, which died out in the present year after ten had fallen victims to the disease, all of these

being children. There have been eleven other deaths from various causes, seven-tenths of which were infants.

During the present year there was an outbreak of measles but no deaths took place, and the health of the municipality is at present most satisfactory.

A. C. BARKER,
Secretary.

DUMMER.

Medical Health Officer's Report.

In compliance with the requirements of the law I submit to you my report. Early in the spring of 1888, a case of diphtheria made its appearance, and from its cause came a number of others in the immediate locality. The house was visited and an examination made of it and surroundings. They were found to be well fitted for the development of diphtheritic germs. The well was close to the door, and the earth surrounding the well was apparently the receptacle of soapsuds and dish-water of the house. There were two deaths during the outbreak. The house was placarded and isolated. Funerals ordered strictly private, and isolation for six weeks after all signs of disease had left the house, and all clothing and the house had been strictly and thoroughly disinfected. In the northern part of the township there has been some cases of measles and whooping cough, but of a mild and favorable type. There has been no other epidemic or contagious disease under my notice. I would direct the attention of this Board to the condition of our schools and surroundings. It would be well to direct the attention of school trustees to the provisions of the Health Act. In closing this report I would express the hope that next year we may be more strenuous in our efforts to promote sanitary reforms than we have been in the past.

J. A. COUCH, M.D.,
Medical Health Officer.

EASTNOR.

Medical Health Officer's Report.

I have the honour to submit the following report on the sanitary condition of this municipality during the past six months, during which I have acted as Medical Health Officer.

At the present time our municipality is entirely free from contagious diseases, there having been but three cases of typhoid fever and an epidemic of measles. The latter disease became general, owing to parents allowing their children to attend school when other members of the household had the disease.

I was requested by the trustees of Swan Lake School to visit the section and examine the children, as the school had to be closed owing to non-attendance from sickness. I found upon examination that they were affected with measles of rather a severe type; no deaths from any of the above diseases.

From reports that a contagious disease was spreading amongst the cattle in the western portion of the township, I visited that section and acting under instructions from the Local Board of Health, requested C. R. Notman, V.S., to visit that district. We examined a few typical cases, and Mr. Notman's report on the same I herewith enclose for your perusal, as requested by your Board. I have made a house-to-house visit and vaccinated between three and four hundred children. I find upon examination that scarcely two per cent. of the children of the township have ever been vaccinated.

I would also respectfully draw the attention of the Board to the fact that this village Lions Head, being the main centre of trade for that portion of the Saugeen Indian Peninsula lying to the north of this municipality, ought to exercise proper precautions in reference to the spread of zymotic diseases. Scarlet and typhoid fever, as well as measles, have been prevalent in those sections during the past year, and in which no Local Board of Health exists.

The fact that all the cases of fever which have occurred since my residence in this municipality have been traced to outside causes, goes far to prove the general healthfulness of the municipality.

JAS. S. FREEBORN, M.D.,
Medical Health Officer.

EDWARDSBURG.

Secretary's Report.

In compliance with the requirements of "The Public Health Act," I beg to present the annual report of the Local Board of Health of the municipality of the township of Edwardsburg.

The general health of the municipality has been good, with the exception of a few cases of diphtheria in the early months of the year, two of which proved fatal; the others being of a mild type soon recovered. The Board ordered the houses where the disease was to be thoroughly disinfected and fumigated.

For the information of the people the Board ordered two hundred hand-bills to be printed and posted up in the public places, containing extracts from "The Public Health Act" regarding school protection; the removal of putrid and decaying animal and vegetable matter, and the cleaning of cellars, outbuildings, yards, etc.

The sanitary condition of the township at present is good.

GIDEON FAIRBAIRN,
Secretary.

EGREMONT.

Secretary's Report.

In submitting my annual report for Egremont, I would say that so far as known to us the sanitary condition of this township is good.

We have had several cases of typhoid fever during the past year, but all recovered. One case seems to have been imported; the others were not attributable to any unsanitary or known cause.

These cases were not reported to the Board, hence the difficulty of making an accurate report. Although we supplied all the physicians in and around the municipality with blank forms for such reports, yet they do not give the Board this information.*

Only one complaint was made during the year and it was attended to. With the exception of burying a few dead animals, the duties of our Board have been comparatively light.

D. ALLAN,
Secretary.

* Many of the reports from municipalities contain similar complaints as to the delinquency on the part of medical men in reporting infectious diseases. The law is plain in this matter, and it is the duty of Local Boards to see that it is obeyed. If a few examples of the delinquents were made before a magistrate, the desired effect might be gained. [ED. REPORTS.]

 ELDERSLIE.
Chairman's Report.

The Board of Health for the township of Elderslie for the year 1888, reports as follows:—That the sanitary condition of the township for the present year has been such that this Board has had no cause for active interference. There have been several cases of typhoid fever, none of which resulted fatally. In one family scarlet fever caused the death of one child. In one or two cases of diphtheria the medical men in charge took the necessary precaution to prevent the spread of the same. The Board was not notified of any nuisance existing in any part of the township.

JAMES GARNET,
Chairman.

 ELMA.
Chairman's Report.

The general health of the township for the year has been pretty good, although we have had some cases of diphtheria and some of typhoid fever, but to no alarming extent. There were some cases of both diseases which were carried into the township from outside points by persons who were affected. At the present time the general health of the township is very good.

There are a number of cheese-factories in the municipality, and before the owners or managers commenced operating these factories in the spring, they were notified by the Secretary of our Local Board that the factories and surroundings must be kept clean and in as good a state as the law directs.

Also, all owners of slaughter-houses were similarly notified; the owners obeyed orders strictly.

All the swamps are getting reclaimed and drained, so that all the surplus or stagnant water is a thing of the past.

ROBERT CLELAND,
Chairman.

 ENNISKILLEN.
Medical Health Officer's Report.

As far as I have been made acquainted, I think your Board have had but little to exercise themselves about during the past year.

The general health of the municipality has been good, perhaps above the average. Typhoid fever has prevailed in a few families on the 12th line, and appears to have been very fatal in its results. It did not spread to any extent and has now I believe entirely subsided. It is difficult in many cases to ascribe the cause; in this instance it would appear like an extension of the disease which prevailed in Petrolia to so alarming an extent at one time during the fall. That it might have originated from the intercommunication of the people, is to my mind quite feasible; nothing is more likely. Though not actually a contagious disease, yet the proof is abundant that one member of a family will introduce it to the rest though every precaution may have been taken in regard to cleanliness. As an example I might mention the case of a young man who was ill with the fever in Petrolia this summer; as soon as convalescent he was taken to his home nine miles in the country, where he imparted it to four brothers and one sister, the latter dying of the disease. In this connection it would not be amiss to impress on the Board the

necessity of complying with the Act regarding the cleansing of wells and water closets in the early summer of each season. This is not attended to, and doubtless many deaths and much sickness are attributable to the fact.

The Medical Health Officer's report will never be complete or in any way satisfactory, unless the physicians practising in the municipality report to him from time to time the cases met with in their practice. I would ask the Board to communicate with these gentlemen and ascertain if they will co-operate with us in getting at something like an accurate statement of the various diseases occurring under their notice. It would be a valuable aid from a statistical point of view, besides furnishing the Local Board with information which could be acted upon without delay.

As near as I can ascertain the deaths from infectious diseases for the past year in Enniskillen have been confined to those occurring from typhoid fever; these number six in all, about one-half of those who were stricken down.

G. D. LOUGHEAD, M.D.,
Medical Health Officer.

ESQUESING.

Chairman's Report.

In conformity with the provisions of the Health Act, I beg to report that the Local Board of Health for the municipality of this township held two meetings during the year.

The Sanitary Inspector made his usual inspection and reports favorably of the sanitary condition of the several villages of the township. One case of typhoid fever was reported. The patient recovered. No other case from that locality or from any other part of the township was reported.

The Board, however, has reason to believe that other cases of typhoid fever, measles and at least one case of diphtheria have occurred, of which no report has been received from the attending physician.

On the whole the general health of the inhabitants of the municipality is considered good, owing perhaps to the improved sanitary condition of the more populous districts.

There is no Medical Health Officer employed.

The Board is of opinion that the powers and duties of Local Boards should be more clearly defined, and clause 48 of the Health Act, Revised Statutes, cap. 205, amended, which is at present merely discretionary as to the voting by councils of a sum or sums of money to Local Boards for the carrying on of the work deemed necessary by such bodies.

I also beg to suggest to the council that the new Board of Health for the ensuing year be authorized to have printed a few simple rules on sanitation for the guidance of the ratepayers, and to be delivered by the assessor when making his annual assessment. This is looked upon as a cheap plan of improving the health of the community if adopted, and of reducing the cost of doctors' bills.

R. GRAHAM,
Chairman.

ETOBICOKE.

Medical Health Officer's Report.

I have the honour herewith to submit my third annual report regarding the health of this municipality.

With two exceptions there has been a total absence of infectious diseases during the past year. I have had only one case of typhoid fever, imported from Toronto, and one case of small-pox, this patient also blaming Toronto for the contagion. I am thankful to

say that the disease has been confined to the first case, notwithstanding the fact that there were twelve members of the family, two children under two years not having been previously vaccinated. By making temporary quarters in the driving shed, we moved the family after a complete change of clothing and all having been vaccinated, where they remained until the patient had quite recovered and the house thoroughly disinfected.

I would again advise your Board to post notices in the Villages of Islington, Lambton Mills, Mimico and Humber Bay, to have all privy and vaults cleaned and disinfected, and to have the council pass a by-law making it compulsory to use the dry-earth system of closets. The Inspector to make at least two rounds during December and May, following the posting of the notices.

In the matter of cow byres and milk vendors in this municipality, I would refer you to a circular issued by the Provincial Board of Health last year as to registrations, inspections, etc., etc., in connection with the sale of milk. Also in the matter of slaughter-houses. I am led to believe there is some killing in places where it should not be without a permit from your Board. I have had several complaints about one in the north end of this municipality.

J. H. COTTON, M.D.,
Medical Health Officer.

EUPHRASIA.

Medical Health Officer's Report.

I have the honour to submit the following reports of the sanitary condition of the township for the year ending December 1st, 1888:—

On the 3rd of January, 1888, being notified that diphtheria had broken out in a certain locality, I visited several families where it was said to exist. In the first family I found two children had died of membranous croup following diphtheria, and four more were suffering from sore throats and croupy symptoms. As no medical man was in attendance, I treated those who were still ailing, and furnished medical disinfectants and other necessities to ensure the safety of the public in the locality. I also gave necessary instructions for attendance, isolation, cleansing and disinfecting the house and contents.

In the second family I found all well. In the third simple cases of sore throat, but not of an infectious or contagious nature. In the fourth family one child had died of diphtheria a couple of days before, and another was still bad with it. I followed the same course here regarding instructions, etc., to prevent its spreading. On February 4th I was again notified that diphtheria existed near Kimberly. I visited those families the following day, and in the first found that ten children had suffered from it, one of whom had died; several of them were yet ailing. I gave the necessary instructions regarding isolation and sanitary measures. In the second family I found two suffering from it, and with them and the family followed the same as in previous cases. In the third family two children were afflicted with it, both of whom afterwards died. As these were under medical attendance, I gave the usual instructions to prevent its spreading, etc. On the 5th of February I was called to another family said to be suffering from it, and found one child down with it, whom I attended until well. On March 1st I was notified that it had broken out in another locality, but on visiting the family found nothing of a contagious or infectious nature.

During the year I visited nine families in the township, amongst whom there were twenty-five cases of diphtheria and six deaths. The only other infectious or contagious disease that came under my notice were a few cases of measles, all of which got well. The people of the township, as a whole, are in comparatively good health.

The origin of most of the above cases I traced to contagion by a family who had come from the United States, some members of which were afflicted at the time with the disease. In almost every place, so far as I could find where they visited, the disease

broke out in a few days afterwards. In one of the families the origin could not be clearly traced, but it was thought to be due to impure water. By none of the families was it communicated to the others, so far as I can ascertain; and the disease was confined to the house in which it first appeared. To several of those places I sent the ordinary legal notice to be posted up at the entrance to the place, warning the public of the existence of contagious disease in the house, but I regret to say that I found some of the parties strongly averse to this plan of protection.

T. S. SPROULE, M.D.,
Medial Health Officer.

EXETER.

Secretary's Report.

In February the Board ordered posters to be placarded, warning the citizens of liability to prosecution for neglecting to report contagious or infectious diseases to the proper authorities.

In March the Board received intimation from the council that Dr. Hyndman had tendered his resignation as Medical Health Officer; the Board recommended the acceptance of the resignation, and requested the appointment of Dr. Lutz in his stead. The Board recommended the cleaning out of the drain at Hawkshaw's Hotel, and also ordered the issue of notices to all residents to clean and disinfect their premises. In April the Sanitary Inspector reported that all had complied with the order of the Board, with the exception of a few cases. He was instructed to see that the premises complained of were put in a sanitary condition immediately. On the 13th of June the Board visited a few places which were reported in an unsanitary condition, and gave instruction to remove cause at once, which was done.

At a meeting held on the 9th July, a request was made to the council to plank the bottom and sides of the drain at Hawkshaw's Hotel, so as to secure proper cleansing by flushing and scraping, to which the council paid no attention, so the drain remains as it was—a source of continual complaint and annoyance, and it may be of disease.

On the 3rd September the chairman reported that in consequence of the many cases of typhoid fever at present in the village, many were anxious that an effort be made by the Board of Health to prevent the further spread of the disease, but the Board considered themselves powerless in the matter. At the same meeting a notice was published expressive of a determination to prosecute any person manufacturing cider, who would leave exposed any refuse of such manufacture on his premises or elsewhere in the village.

On the 29th October the Board published the following resolution: "That in view of the existence of smallpox in Toronto and elsewhere in this Province, this Board consider it their duty to earnestly recommend the immediate vaccination of all residents of this village and vicinity who have not been recently vaccinated."

With the exception of an outbreak of typhoid fever and measles the condition of the health of this village has been on the whole very satisfactory.

M. EACRETT.
Secretary.

FLAMBORO, EAST.

Medical Health Officer's Report.

It again becomes my duty to submit to you the yearly health report of the Medical Health Officer of the municipality. We have enjoyed exceptionally good health during the past year, and as a consequence the death-rate is low. Fourteen deaths have taken place, which gives the very low rate of six deaths per thousand of population. Of

these deaths four were persons over 65 years of age, and five of infants of one year or under. Of these deaths none occurred from diseases which are preventable by this Board—not a death taking place from typhoid, diphtheria, scarlet fever, measles or smallpox. A few cases of typhoid have occurred, but of a mild type. No nuisances have been reported to me this year; and while visiting at different times a large number of the houses in the township during the past twelve months, I have not noticed anything that would be injurious to the public health.

J. D. COURTENAY, M.B.,
Medical Health Officer.

FLAMBORO, WEST.

Chairman's Report.

I herewith submit my report as chairman of the Local Board of Health:

We have held four meetings during the year. Careful inspections have been made by the Sanitary Inspector of all slaughter-houses, dairies, school premises, stores, hotels, mills, factories and most of the private houses in the villages, and almost all were in a fair condition. There have been comparatively few cases of infectious or contagious diseases during the year. The number reported was typhoid fever, four cases, supposed to be caused by using bad water; scarlet fever, twelve cases, caused by transmission of infection from other sections; diphtheria, four cases, which appeared in different sections at different times during the year and for which no special cause can be determined. None of the cases mentioned resulted fatally. No cases of smallpox have occurred in this or the adjoining municipalities, but should any occur the Board is prepared to put in force the Act respecting vaccination, and to use all means in their power to prevent the spread of the contagion.

The expenses of the Board this year are in accordance with the accounts presented.

We have good cause for thankfulness for the satisfactory sanitary condition of the township, and from the almost total immunity from diseases of an infectious or contagious character which we have enjoyed during the year.

CHARLES S. CUMMINS,
Chairman.

FREDERICKSBURG, NORTH.

Medical Health Officer's Report.

During the past year there have been no serious epidemics in the township. What might have been the beginning of another epidemic of diphtheria was, by the efforts of the Board, confined to the first house in which it appeared. Three young men visited Kingston on the 12th of July and, though all belonging to different homes in South Fredericksburgh, were taken down with a severe form of diphtheria in about one week's time. The South Fredericksburg Board of Health used rigorous means of isolation and disinfection. Nevertheless, it was conveyed to several in the same homes and to one other house in the township. After apparent convalescence one party visited friends in N. Fredericksburgh (contrary to advice), the result being the death of one child and serious illness of the only other one in the family. It is by such experiences that we learn the great care necessary to prevent the spread of these diseases. There were a few cases of typhoid fever during the past autumn, mostly mild.

I have inspected the slaughter-houses and cheese factories during the summer and have found them kept in good condition. One slaughter-house is too near the highway and to dwellings, but the owner is about removing it. There are a few pig-pens also too near the road, and the owners should be notified to remove them.

G. C. T. WARD, M.D.,
Medical Health Officer.

GAINSBORO'.

Secretary's Report.

I have the honour to submit the fifth report of the Secretary of the Local Board of Health of the Township of Gainsboro'.

The Township of Gainsboro' has had another year of good health, for which blessing all good citizens are truly thankful. The Local Board of Health did not consider it necessary to enforce the compulsory provisions of the statute regarding vaccination, for the reason that there is no railway running through the township and but little danger of smallpox being brought in from distant places. Measles was the only infectious disease that occurred during the year.

S. KENNEDY,
Secretary.

GARAFRAXA, WEST.

Medical Health Officer's Report.

I beg leave to report that the general health of the township during the past year has been exceptionally good.

There has been no epidemic of any importance, with probably the exception of measles, which was somewhat severe in one or two localities; some of the cases proved fatal. We had five cases of typhoid fever in the municipality this fall, all being imported cases, that is, none of the cases were developed in the township. One case was fatal, but the patient had a heart complication, which we believe was the immediate cause of death. There were three or four cases of a mild form of diphtheria, but the disease was stamped out before it had assumed anything like a malignant type. The cases were due to foul cellars and defective drainage. The only or principal causes of death were old age and inflammation.

JOHN G. MENNIE, M.D.,
Medical Health Officer.

GEORGINA.

Secretary's Report.

I beg to present my report of the proceedings of the Township Board of Health for the year now drawing to a close. In the commencement of the year the Board had no occasion to meet or even organize until the 11th August, when the first meeting was held, complaint having been made that a butcher was slaughtering animals in the Village of Sutton. The Board examined the premises and ordered such practice to be discontinued. The Secretary was given instructions to prepare public notices containing the requirements of the Public Health Act, and have them posted throughout the township.

The Board did not meet again until the 19th October, when the smallpox broke out in North Gwillimbury, the adjoining municipality, at which meeting it was decided to notify the trustees of the respective school sections in the township as set forth in section 16, chapter 206, R.S.O.

At a meeting held on the 22nd October the Municipal Council was requested to appoint two Sanitary Inspectors, and to proclaim by posters that all inhabitants of the municipality be vaccinated, in accordance with section 15, chapter 206, R.S.O. Posters were also put up warning persons who had access to smallpox from mingling with the general public; and all churches, schools and societies were ordered to be closed. The Sanitary Inspectors were ordered to keep a vigilant watch at Sutton and Baldwin, two leading thoroughfares from North Gwillimbury to this municipality, in order to prevent

the importation of the disease if possible; and the houses of William Draper, who had contracted the smallpox in North Gwillimbury, together with two other families who were known to have been visiting where the smallpox was, were quarantined.

The Board met again on the 2nd November, and the Chairman was authorized to arrange with the Reeve of East Gwillimbury for the erection of a suitable place for the shelter of the families in both municipalities affected with smallpox, while their houses were being disinfected.

The Board decreed that in the event of no new cases of smallpox breaking out that the schools, churches and societies be re-opened on the 9th November, 1888.

Another meeting was held on the 19th November, when a complaint was received in reference to a "well" on the premises of Wyndham Shirr, Udora. The Board appointed the Secretary to investigate in reference thereto, and, if necessary, to condemn the same. The house of William Draper was ordered to be thoroughly disinfected. Two cases of typhoid fever was reported in the Village of Sutton.

The Board met again on the 26th November, when the Secretary reported that the water in the "well" of Wyndham Shirr, at Udora, was unfit for domestic use; consequently it was condemned. The Medical Health Officer was instructed to see that the Act was carried out in regard to the two cases of typhoid fever in Sutton.

A case of diphtheria was reported in the month of October; the premises were ordered to be placarded, and, the Medical Health Officer being the attending physician, the person recovered. The house was thoroughly disinfected, and the other members of the family escaped the disease.

With the exception of the foregoing the Township of Georgina has enjoyed a blessed immunity from contagious diseases during the year. The Board has endeavoured by every means in its power to check the spread of smallpox that prevailed so extensively in the adjoining municipality, more particularly the Chairman of the Board, Mr. Anderson, Reeve of this Township, who was very zealous and energetic during the excitement that prevailed on that occasion.

ANGUS EGO,
Secretary.

GLANFORD.

Secretary's Report.

The first meeting of the Board of Health for the Township of Glanford, after their reappointment by the Council, was held on the 30th January. All the members being present and being duly organized, expressed a willingness to fill the office to which they were appointed. I have the pleasure of informing you that the Board have not been required to take action in many cases of contagious disease, with the exception of one house, where diphtheria has made its appearance, and one case of typhoid fever. In the cases of diphtheria one proved fatal, but as Dr. A. Farewell, Medical Health Officer for this Township, attended those cases, he used every means necessary to prevent their spread. From the healthy state of the Township and the absence of complaints or the knowledge of any existing nuisance requiring the action of the Board or the services of the Sanitary Inspector, it has not been necessary for the Board to hold any subsequent meeting. As to milk vendors, there are quite a number of them residing in this municipality, none of whom have applied for permits to this Board, but as they all, without exception, sell their milk in Hamilton, I suppose they obtain permits from there. I am pleased to state that the sanitary condition of the township is still good, and the death-rate during the year has been rather below the average of past years.

THOMAS CHOATE,
Secretary.

GLENELG.
Secretary's Report.

I have the honour to report that the general sanitary condition of this Township during the current year has been exceptionally good. Diphtheria broke out in two families, but as the householders and the physicians in attendance failed to report to the Board, no steps were taken by it to isolate the cases or trace the cause. The disease, however, appears to have been confined to the two families, in one of which only one member was affected, and the disease is now entirely stamped out without any fatality.

It is very gratifying to report that with the exception of the above cases no other infectious or contagious disease existed in the Township during the year, and this immunity can in all probability be attributed to several causes: the absence of slaughter houses, tanneries, stagnant mill ponds and other disease-generating centres; the plentiful supply of pure, wholesome water in all parts of the township, and the general cleanliness of the people.

J. S. BLACK,
Secretary.

GLOUCESTER.
Secretary's Report.

On behalf of the Local Board for Gloucester Township, I beg leave to report as follows:—The sanitary condition of this Township for the year 1888, so far as the same relates to the general health of the inhabitants, has been satisfactory; no epidemic, contagious or malarial diseases are known to have existed, with the exception of a few isolated cases of diphtheria and fever, for the origin of which we can assign no other reason than some domestic irregularity or constitutional predisposition.

During the year our Sanitary Inspector has carefully inspected every part of the premises of twenty-five persons engaged in keeping cows for the sale of milk, and found nothing objectionable except in two cases, which were removed. He has also been called upon to look after and cause to be abated eighteen cases of distinct nuisances existing either on the premises of the individuals or on the public highway; all were satisfactorily disposed of with the exception of one, in which the Magistrate imposed a fine of \$5 with costs of the trial.

C. BILLINGS,
Secretary.

GOSFIELD, NORTH.
Chairman's Report.

I have the pleasure to report that during the last year the Township of Gosfield North has been remarkably free from contagious diseases, only four cases of malarial fever having been reported to the Board, and only one of a severe type that resulted fatally. In the spring there were a number of cases of measles confined to a small circle and without any fatal results.

The Inspector reports that he has had great difficulty in enforcing cleanliness in tenements and other rented houses, in consequence of the vagueness of the law as to who are the responsible parties in regard to back-houses, the owner or the tenant.

THOMAS McCREERY,
Chairman.

GOSFIELD, SOUTH.

Medical Health Officer's Report.

In accordance with the requirements of the Public Health Act, I herewith present my annual report for the year 1888.

In consequence of the recent formation of the municipality, and the fact that all of the members of your Board are new to their position, and therefore comparatively unacquainted with their duties in detail, the work of your body has not been characterized by that degree of thoroughness which should and undoubtedly will mark its future actions. I have, however, to compliment you upon your zeal and evident desire to make your organization meet and carry out all the objects for which it is instituted.

Regarding the sanitary condition of the township during the past year, I am gratified at being able to report that, with the exception of a few cases of scarlet fever and a light visitation of diphtheria, it has been exceptionally favourable.

S. A. KING, M.D.,
Medical Health Officer.

GREY.

Secretary's Report.

In presenting to you the annual report of the Local Board of Health of the Township of Grey, it affords me much pleasure to be able to state that the general health of the township for the past year has been good, with the exception of four cases of diphtheria in one family, in the southern part of the township, three of which proved fatal. There has been no other disease of a serious nature reported and the municipality is believed to be in an excellent sanitary condition.

WM. SPENCE,
Secretary.

GRIMSBY, SOUTH.

Medical Health Officer's Report.

During this year there has been a great number of cases of whooping cough, but there has been nothing done to check its spread by the Board and not much by private individuals. They say "it is six weeks coming, six weeks bad, and six weeks going" and thus they let them whoop.

There were cases of scarlet fever reported in three houses; none of these houses were placarded as far as I am aware, but fortunately none proved fatal. Instructions from medical attendants and the strong law of self preservation, were all the protection the public had.

Diphtheria was reported in some cases. The Medical Health Officer was instructed to placard the house of one, which was at a distance of six miles. On reaching the house the patient showed no symptoms of diphtheria, unless it was a piece of red flannel about the neck.

Attending physician notified Secretary by postcard weeeekly.

We would recommend that in rural districts, those persons now responsible for reporting contagious diseases (attending physician and householders), be made responsible for the placarding infected houses, and that such cards be furnished to medical practitioners same as the notices of contagious diseases are now.

D. McMURCHIE, M.D.,
Medical Health Officer.

 GWILLIMBURY, EAST.
Medical Health Officer's Report.

In accordance with the requirements of the statute regarding the public health, I submit the following report for the year 1888.

During the first half of the year the measles became very prevalent nearly all over the township, attacking both children and adults, a number of cases being quite severe and requiring medical attendance. Throughout the year there was also a number of cases of diphtheria, typhoid fever, malarial fever and scarlet fever. The general means of disinfection were observed, and none of these diseases spread to an alarming extent.

In October a case of smallpox was reported in the extreme north-eastern corner of the township. The disease was contracted in the adjoining township of North Gwillimbury. The Board of Health took immediate action, enforcing the vaccination Act in the northern part of the township to stop the spread of the dread disease from the north, quarantining the afflicted one and also the infected district, and taking every means to limit the disease. Vaccination was common in the greater part of the township. The case made a good recovery and the disease is supposed to be defunct and the township now in a satisfactory condition. All complaints of nuisances were promptly attended to by the Board.

W. ARMSTRONG, M.D.,
Medical Health Officer.

GWILLIMBURY, NORTH.

Medical Health Officer's Report.

I have the honour to make the following report as Medical Health Officer for the township of North Gwillimbury.

Our township has been visited with an epidemic of smallpox, beginning on the 10th October. The origin of the epidemic was from a young man, Sprague, North Gwillimbury, who had attended the Toronto Exposition. The disease was diagnosed on the 10th of October, but in the meantime a number of people had come in contact with the affected person. The fact that smallpox existed in rural townships necessarily created a good deal of disturbance in the community. At a joint meeting of the two Boards vigorous steps were taken for the suppression of the disease. I would here congratulate the Reeves of the respective townships for their untiring efforts in assisting their respective Boards of Health in getting the disease under control. I also thank them for individual assistance rendered to myself.

There were seventeen cases of the disease in all, and only one death.

We have fortunately had only one death, an infant, from the disease, and writing at this date I can reasonably expect that the danger is past.

In communities of so great an extent, difficulty is experienced in carrying out the means of protection. Both townships passed the compulsory Vaccination Act, and that has been carried out as far as practicable. It is true that we have had to contend with some persons so headstrong that they would not submit to vaccination, but on the whole I have to congratulate the people on their willingness to uphold the law, and do what we judge best for themselves and families.

My sincere thanks are due to Drs. Bryce and Lehman for valuable advice, as also to my assistant vaccinators for the efficacy of their work.

I have also to report two cases of typhoid fever in the township of Georgina, and one case of diphtheria. All these cases were under my personal supervision and no new cases of either disease have since developed.

Dr. Pringle, a co-practitioner in this district, has also been active in assisting with the vaccination of the people.

I think the people are to be congratulated in the rapid stamping out from the community of such a contagious disease as smallpox, and to the Boards of Health, with the addition of the gentlemen above named, I feel myself much indebted for so satisfactory a result.

T. B. BENTLY, M.B.,
Medical Health Officer.

HALDIMAND.

Medical Health Officer's Report.

I beg to submit the annual report on the sanitary condition of this township for the past year.

The type of contagious diseases which have been most prevalent in years past, viz. typhoid, malarial fevers and diphtheria, have in a very much milder form prevailed in some localities during the past year.

In the neighbourhood of Grafton there have been several cases of typhoid fever malarial fever and diphtheria, the causes of which were discovered and remedied.

Malaria still abounds in the locality of Grafton Grand Trunk Station. Although much improvement has been made in the way of elevating the road and some parts of the station yard, much yet remains to be done; and to perfect what has been only commenced, it will be necessary for this Board to prevail on the Grand Trunk corporation to make still further improvements.

From far-off parts of this municipality came occasional reports of contagious and infectious disease, but owing to the Health Act being improperly carried out no official report has been received.

I have to report the same complaint as in years before, that reports of diseases required by the Health Act in distant parts of this township are not made; and before this Board can obtain accurate reports of sanitary conditions, or before the annual report is as the Act requires, some means must be adopted to obtain official and true information.

I trust at the ensuing annual meeting this matter will receive your serious consideration.

W. W. BOYCE, M.D.,
Medical Health Officer.

HARVEY

Secretary's Report.

I have to report two cases of diphtheria in Harvey township during the present year; both of the patients recovered. One was sick sixty days and the other fourteen days, as reported to me by our Medical Health Officer, Wm. McCamus, M.D., of Bobcaygeon.

I am glad to have it to report that we are free from all contagious diseases, and that the general health of the inhabitants is good.

JAS. S. CAIRNDUFF,
Secretary.

HAWKESBURY, EAST.

Chairman's Report.

The Local Board of Health of the township of East Hawkesbury was organized in 1885, and for three years there was a good deal of diphtheria and scarlet fever, but for the last twelve months the township has been free from these diseases.

There still exists a pretty strong opposition to the working of the Board, notably by owners of cheese factories ; and, also, the trustees of the common schools do not all try to keep the water closets as clean as they ought to be, and in some cases have none on their premises.

In 1888 the Local Board of Health held three public meetings at different places and on different dates, and had the Act on Public Health explained in both English and French, and found it to have its effect for good when the people understood the intention.

ROBERT LEE,
Chairman.

HAWKESBURY, WEST.

Medical Health Officer's Report.

This municipality was entirely free from contagious diseases till the latter part of the summer. During the hot weather the sickness among children was less than usual, and the type of sickness was such as to render the disease more easily controlled. After the wet weather began typhoid fever and diphtheria made their appearance together, with quite a number of cases of pneumonia, bronchitis and other lung troubles. There have been seven cases of diphtheria, eight of typhoid fever and no deaths.

The Sanitary Inspector reports that the township is in a very fair sanitary condition. He says, however, and I agree with him, that the village cannot be kept in a sanitary state so long as the present imperfect system of drainage is continued.

D. J. McINTOSH, M.D.,
Medical Health Officer.

HAY.

Secretary's Report.

In compliance with the provisions of the Health Act the township council appointed a full Board of Health at its first meeting. The Board considered it necessary to call one meeting only, early in the spring. A complaint had been made that a pond of stagnant water adjoining the schoolhouse grounds in the village of Zurich, might become the source of disease ; also, that an open drain in the same village containing filth and stagnant water, was detrimental to the public health. The Board acted promptly in the premises and caused the nuisances to be abated.

The work of the Sanitary Inspector consisted in causing the removal of two pig-pens in the village of Zurich, and preventing the accumulation of manure heaps owned by two different parties in the same village, and inspecting and causing a tannery and slaughter-house to be kept purified and cleanly. He also examined the grounds and water closets in some of the school sections of the township and had the same cleansed wherever it was found necessary.

The general health of the people of the township has been very good during the year. There has been two outbreaks of scarlet-rash with no reported fatal results. A few cases of diphtheria occurred during the spring and fall. All recovered so far as is known. Three cases of typhoid fever were reported, and a number came under my own observation that were not reported by medical men. Of the three reported two proved fatal—both being brought home sick with the disease from outside municipalities, but through the skill of the physicians the disease was prevented from spreading.

S. FOSTER,
Secretary.

HIBBERT.

Secretary's Report.

The Local Board of Health for the township of Hibbert had no occasion to display any extraordinary activity during the present year, because there was nothing unusual in the general condition of the health of the people to justify it. No reports have reached me of any infectious or contagious disease breaking out in the municipality, except one case of typhoid fever and that an imported one, which was not accompanied by any bad results. The Local Board of Health took no steps towards enforcing a general system of vaccination, seeing that there was no apparent cause for immediate action, and to avoid the expense which such a course would entail on the township. Dr. A. McTavish, Medical Health Officer, has, I regret to say, become an invalid; and as he had given up the practice of his profession and moved away from the municipality, I fear he will not be able to make any report.

J. CARROLL,
Secretary.

HILLIER.

Medical Health Officer's Report.

I beg to report six cases of diphtheria during the year occurring in the township, which were reported to me by their medical attendants, with three recoveries and three deaths, all of which were quarantined, and after recovery or otherwise buildings and clothing thoroughly disinfected. The only nuisance brought under my notice was a slaughter-house in Consecon. I visited and examined it thoroughly on July 4, 1888, and found building in a clean condition; but occupant had moved apparatus the night previous. It was situated too near the street and too close to dwellings, contrary to law. On the first of October I was notified that Joseph Hays was slaughtering on said premises. I ordered him to cease doing so or I should be compelled to take action in the matter. I have not had any complaint relative to it since.

J. B. RUTTAN, M.D.,
Medical Health Officer.

HINCHINBROOKE.

Secretary's Report.

I am happy to inform you that the Board of Health of the township of Hinchinbrooke has not met this season so far, there being no necessity for it. The township seems to be in a perfectly healthy state. There have been no contagious nor other diseases reported. There has been no sickness to speak of, and there have been but two deaths, and those from old age and old standing complaints. The Board of Health has had no interview with their Medical Health Officer; consequently he has no report to make. I write from my own knowledge of the state of the health of the community, and if the Board was in session they would adopt it. Hoping it will meet with your approval,

JOHN HAMILTON,
Secretary.

HOPE.

Secretary's Report.

I have much pleasure in stating that during the year there has been no epidemic of a serious character within the municipality.

There have been a few cases of diphtheria, two resulting fatally; but upon strict quarantine measures being enforced by isolating the families afflicted, and a liberal use of proper disinfectants, the disease has in each case been confined to the parties originally attacked.

Complaints have been made to the Board of Port Hope of parties dumping garbage and other refuse matter upon the lake shore, east of the town, which in hot weather decomposes and exhales noxious gases, poisoning the atmosphere and making it at times unbearable to residents of that vicinity.

Printed notices were posted prohibiting all kinds of refuse matter from being deposited on the beach, and as a result the nuisance has been somewhat abated. Other and more effective measures may be required in order to put a full stop to the pollution of this neighbourhood.

The several slaughter-houses and cheese-factories situated within the municipality have been inspected periodically by the Inspector, and found to be kept in good sanitary condition.

It has not been considered necessary to enforce the law respecting the inspection of the premises of vendors of milk, no complaints having been made to the Board as to the condition of the byres or to the quality of the milk sold.

In conclusion I would suggest that the duties of the Sanitary Inspector be extended to the inspection of public school premises, as complaints have been made of the unsanitary condition of the same; also, that cards be printed for the use of the Medical Health Officer, in order that infected houses and districts may be properly placarded.

E. E. DODDS,
Secretary.

HOUGHTON.

Secretary's Report.

In reporting on the sanitary condition of this municipality, and the work of the Local Board of Health during the past year, I am sorry that I cannot, as in former years, report immunity from contagious and infectious diseases. There have been fifteen cases of diphtheria reported, of which number seven proved fatal. The proportion of the cases terminating fatally shows the disease to have been of a virulent type. There were three outbreaks of the disease in as many localities, sufficiently distant from each other that there is no probability of any connection between them. From the most reliable information obtained as to the causes of these outbreaks, it is almost certain they were not caused by anything existent within the municipality. The first affected in each family had contracted the disease from patients suffering in other municipalities, others from persons who had been away and returned home, being afflicted therewith on their return. The Board, when aware of these outbreaks, took such steps as were deemed best calculated to prevent the spread of the disease. Schools were for a time closed, isolation effected, and fumigation and disinfection employed. No Health Officer had been appointed, the duties of that office having been intrusted to the member of the Board residing nearest the afflicted localities. At the last meeting of the Board there was not a case of diphtheria known to exist in the municipality, and none have since been reported to the secretary.

GEORGE BUNDY,
Secretary.

 HOWE ISLAND.
Secretary's Report.

I have to inform you that this township was free from sickness of any kind for the current year, except one case of typhoid fever which resulted in death. It was contracted in Kingston where the young man worked, but he died in this township where his parents lived.

The Medical Health Officer lives in Gananoque; he was not called on the present year, so I think he would have no report to make.

Take it all through, this is a healthy part of Ontario.

M. MELVILLE,
Secretary.

 HULLETT.
Secretary's Report.

I have the honour to report that the sanitary condition of the municipality of the Township of Hullett has been very carefully watched during the past year by our Local Board of Health and its officers.

Provision was made in the early part of the year for inspecting the cheese-factories, slaughter-houses and other industries in the township, according to law, which was done. No reports of nuisances, infectious or contagious diseases were reported to the Board during the year.

We had a few cases of typhoid, and one case of diphtheria ended fatally.

JAMES BRAITHWAITE,
Secretary.

 HUMBERSTONE.
Medical Health Officer's Report.

I beg to submit to the Board the following report upon sanitary points coming under my notice during the year. Sanitary duties this year seem to have been well recognized by those officially interested. The Sanitary Inspector has been reasonably active in looking up and abating nuisances, such as uncared-for piggeries, slaughter-house sources of infection, and correcting in places pernicious water-closet arrangements, which would have, if left alone, produced some form of zymotic disease.

My attention was called during the early part of the past spring to a diseased specimen of pork. The hog had been slaughtered by its owner in an adjacent municipality; its carcase carried and delivered to the purchaser, living in Humberstone, who paid for it; but finding its kidneys had been affected by abscess I ordered it to be buried. My action was sustained by the justices before whom action was taken by the purchaser to recover his money. I have had some few cases of infectious diseases reported to me in the past few months—one case of scarlatina, by Dr. J. B. Neff. The house was duly placarded, isolation and disinfection adopted, and the case recovered; the disease did not spread. I had a similar case of my own—the management and result similar. Several cases of scarlet fever were reported to me by Dr. N. Brewster, of Ridgeway, Bertie; they were the children of Frank Near, of this township. The cases presented a mild form of the disease.

There was only one case of typhoid came under my notice. I took personal supervision of all cases of an unsanitary condition, and had them satisfactorily remedied.

Owing to the smallpox in Buffalo our council ordered a general vaccination in the township, and I vaccinated, up to the present, nearly two hundred persons.

I have visited some of the school sections, where I have vaccinated quite a number—some accepted vaccination kindly, others otherwise; one trusty corporation official advised me not to go to the school house. If the vaccinations had been free of charge, I would have done more of them, and even when I have tried to get the fees, I have only succeeded partially.

M. F. HANEY, M.D.,
Medical Health Officer.

HURON.

Chairman's Report.

The Board appointed Francis Shannon, of Ripley, Sanitary Inspector. He visited all the houses and premises in the village of Ripley and several other places in the township, and reported all in a good sanitary condition, with one or two exceptions, which were promptly attended to. There is a system of dry-earth closets in the village. The health of the township has been good during the year, only two cases of diphtheria having been reported, which the Medical Health Officer attended to.

WILLIAM WILSON,
Chairman.

INNISFIL.

Medical Health Officer's Report.

I beg to report that during the year there has been no more than the usual amount of sickness in this municipality. A few cases of diphtheria existed during the month of November in the south end of the township; but, apart from this, we have, I am thankful to say, been remarkably free from contagious diseases. The existence of smallpox in the adjoining township of North Gwillimbury gave cause for considerable alarm; but the measures adopted by the Board, although not so stringent as they perhaps might have been, prevented its introduction into our midst. I have recently vaccinated a large number of persons, principally children; still, I have found a great many, in some cases whole families, who decline to take advantage of this protection, and until your Board decides to make vaccination compulsory, it will never be properly and thoroughly attended to. This neglect on the part of heads of families does not arise from any objection to the operation, but from sheer carelessness, and from the idea that it will be time enough to attend to it when the smallpox is in the next house.

THOMAS BRUNSKILL, M.D.,
Medical Health Officer.

KEEWATIN.

Secretary's Report.

In presenting to you the report of the Local Board of Health for the Township of Keewatin for the year 1888, I have to state that the health record for the township has been remarkably good. The rules for cleanliness have been well observed, and there was no necessity for the council to appoint a medical health officer or sanitary inspector. The removal of a few nuisances was the only work requiring the attention of the Board.

There has not been any contagious disease. This locality is favourably known as a health resort.

T. A. WILSON,
Secretary.

KEPPEL.

Secretary's Report.

In accordance with statute I beg leave to submit my report for the past year. I have much pleasure in stating that the general health of the township has been very good, only one case of contagious or infectious diseases having been reported to me, it being a case of scarlet fever in a very light form, and was confined to one person. The death-rate of the township has also been very low, the total number of deaths being 33, caused by old age, etc. The members of the Board have had very little trouble with unsanitary conditions. There was only one complaint of a nuisance during the year.

GEORGE ATHEY,
Secretary.

KINCARDINE.

Medical Health Officer's Report.

I have the honour of submitting my annual report as Medical Health Officer. It affords me pleasure to be able to say that the health of the people of the township has been as usual very good. We have been free from diphtheria, scarlet fever, and all particularly contagious or infectious diseases due to a want of sanitary precautions in many cases. True, we have had a case or two of typhoid fever, none of which proved fatal; but the cases have been of a mild character, and not traceable to any cause requiring attention from the Board of Health. Complaints to the Board during the year have been few, and these have been attended to.

THOMAS BRADLEY, M.D.,
Medical Health Officer.

KINLOSS.

Medical Health Officer's Report.

In submitting this my second annual report for the township of Kinloss, it affords me pleasure to congratulate you on the almost entire absence of any of the zymotic or infectious and contagious diseases within your township during the year now ending. Early in the summer my attention was called to a severe case of diphtheria on the 12th concession, but by insisting on complete isolation and allowing no intercourse with any of the neighbors, we succeeded in confining it to the one house. I have again to call your attention to the very unsatisfactory sanitary condition of many of the school houses and grounds, and would recommend a thorough inspection with a view to a better system of ventilation. To the want of proper ventilation in our schools is to be attributed the cause of a great many of the minor complaints, particularly headache so frequent among school children.

Trusting, for the sake of little sufferers, that you will give this matter your most serious attention, and enter into it with that energy which has hitherto characterized the Kinloss Board of Health.

JNO. S. TENNANT, M.D.,
Medical Health Officer.

LAXTON, DIGBY AND LONGFORD.

Secretary's Report.

I beg to present my annual report of the health of this municipality for the past year.

I am happy to say that our municipality has been free from any contagious disease for the last year. There were a few cases of measles in the beginning of the year, and the Board dealt with the disease according to the Health Act. The children of the school section were ordered to stay away from school until they were better. There were no deaths. I have heard of nothing since. The Board has no medical health officer, as the municipality is free from disease.

WILLIAM MAXWELL,
Secretary.

LOBO.

• *Secretary's Report.* •

The Secretary of the Board, in compliance with the requirements of the Public Health Act of 1884, begs to report as follows:—

The Municipal Council of the township of Lobo at their first meeting in January this year appointed a Local Board of Health. The Board met, organized and appointed Robert Boston chairman.

P. L. Graham, M.D., was appointed to see that all the school houses in the township were disinfected, and that all the wells and outbuildings were in a proper condition. The Medical Health Officer was instructed to procure all necessaries for the Alway family, who were sick with diphtheria. Under his charge diphtheria was confined to this one house. Two persons died. One of the attendants on the family took the disease while there, and was kept there till better. The premises were disinfected as soon as the inmates were better.

The Board attended to all matters that came under their notice. The general sanitary condition of the township is very good.

E. R. BARCLAY,
Secretary.

LONDON.

Medical Health Officer's Report.

In submitting this report I do so under difficulties, as many of our practitioners have not reported the cases of contagious disease as required by law, and therefore a full report is impossible.

During the past year I visited the cheese-factories in this district, and found some of them in a very unsanitary condition. I ordered them to be properly cleansed and disinfected according to the report formerly sent in by me.

Since my last report I have attended eleven cases of diphtheria and one of typhoid fever, none of which have died; and there have been reported to me twenty-one cases of diphtheria, of which six died, one case of typhoid which recovered, and two of scarlet fever which recovered. At present I am not aware that there are any cases of scarlet fever in the district, though there may be some that have not been reported.

During the past year the township has not been in a healthy condition until the last few months, during which there has not been so much sickness, though there is considerable even now.

GEO. SHOULTS, M.D.,
Medical Officer.

LUTHER, EAST.

Medical Health Officer's Report.

I have the honour of submitting my report as Medical Health Officer for East Luther. I am glad to say we have been tolerably free from contagious diseases. I have had no reports of typhoid cases, and only one of diphtheria brought to my notice, which terminated favourably. There were two cases also of scarlet fever reported in the spring. The Board had some trouble from a nuisance caused by a resident of the village depositing night soil on his garden, and took steps to punish the offender and abate the nuisance.

The Inspector, at my request, visited on two different occasions the butchers' shops and slaughter-houses, and reported favourably. I had to condemn one dwelling-house (though I believe the residents have not yet removed), where four people were living in one room, at the door of which were three water-closets in constant use. The wife of the occupant was down with sickness, which could not be wondered at. I would call attention to the fact that at the public school no water accommodation is provided unless what is carried there, and would suggest that the Board take steps to have it provided. A new cemetery has been opened this year near the village, but so far has not been inspected or reported on. I believe though from personal observation that it is well situated. .

R. R. HOPKINS, M.D.,
Medical Officer.

LUTHER, WEST.

Chairman's Report.

Your Board of Health beg leave to report :—

That after their appointment they met and organized and laid out the township into sections, one section to be under the supervision of a member of the Board, and if any case was brought to his notice he was to report to the Chairman, who would call a meeting of the Board to take such steps as were necessary, and we are happy to say that there was not a single case brought to our notice.

In the early part of the year there were two isolated cases of diphtheria, both of which proved fatal, but the disease was stamped out and did not spread.

That so far as known to us there is no infectious or contagious diseases in the township, and the general health at the present time is good.

JAMES ISLES,
Chairman.

MAIDSTONE.

Medical Health Officer's Report.

I am again pleased to be able to say that we have escaped this year from any contagious disease of sufficient prevalence to be called epidemic. There have been two slight outbreaks of that dread disease, diphtheria, which still seems to linger in some sections all over North America. In neither of the outbreaks did the disease spread. We have had some measles and croup. There has been this year a greater prevalence of typhoid than usual, though I have heard of only one death from it.

I would urge the Board to persevere in their efforts to have each family in the municipality clean thoroughly, at least once a year (in the spring preferred), their respective wells.

The importance of this, and also the drainage of door-yards and barnyards cannot be overestimated in its effects on diminishing zymotic diseases.

Owing to the existence of smallpox in at least two points in Ontario, it may become a question with the Board to have a general vaccination performed throughout the township.

S. RICHARDSON, M.D.,
Medical Health Officer.

MANVERS.

Medical Health Officer's Report.

I have to report that during the past year an epidemic of measles prevailed through the township, but as the type was not malignant in its nature very few fatal cases occurred. A few isolated cases of scarlet fever and diphtheria occurred, but by the judicious management of the physicians in attendance, and the observance of the sanitary laws by the families where the cases existed, the contagion was kept from spreading, and to-day I am not aware of a case in the township.

About half a dozen cases of typhoid fever occurred in Janetville and vicinity, one ending fatally. The fever was caused by a dry mill pond, the water having been let off for repairs, the old rotten logs and sawdust giving rise to the poison which caused the fever, and at one time there was grave reasons for suspecting a general outbreak; but by the advice of Dr. Allan, myself and others, the repairs were hurriedly completed and the water raised, and since the disease has about ended. I believe only one case has occurred since. I am pleased to notice that in the rural parts more attention is paid to sanitary laws than formerly.

T. G. BRERETON, M.D.,
Medical Health Officer.

MARIPOSA.

Secretary's Report.

The Local Board of Health of the Township of Mariposa would respectfully report as follows:—

Our Board was duly organized and held its first meeting in February, 1888.

We have not experienced any trouble in carrying out the provisions of the Public Health Act, as the residents of the township have shewn a willingness to carry out the recommendations of our Sanitary Inspector.

The report of the Inspector shews that he has made since our last report 100 domiciliary visits, carefully examining cellars, wells and privies, and in all cases where he found it necessary gave instructions to have cellars, wells and privies cleaned out, and in some cases to have the privies filled up, which instructions were generally promptly carried out.

He also inspected each of our public schools twice during the year, and carefully examined the wells and water-closets in connection with them.

The several physicians practising within our municipality were furnished with a supply of blank forms for reporting cases of contagious diseases, and were also written to by the Secretary urging them not to fail in making such returns to the Board.

I have had reported from the medical practitioners since my last report nine cases of diphtheria, two proving fatal; two cases of scarlet fever, recovered; five cases of measles, recovered, and three cases of typhoid fever, recovered.

In the cases of diphtheria, as soon as I received notice of the same, I had the house placarded and the disease did not spread.

We consider that our municipality, numbering over 4,000 inhabitants, is in a fair sanitary condition, and certainly in our villages much better than before the formation of the Health Board. The general health of the people is good, and we have no hesitation in reporting that our people are becoming more interested in sanitary matters.

JOHN F. CUNNINGSON,
Secretary.

MARKHAM.

Medical Health Officer's Report.

In compliance with the Public Health Act I beg to submit my report for 1888 :—

I regret to say that the medical men practising in Markham Township, as a rule, do not report cases of a contagious nature. I cannot make a tabulated report, as my information is considerably hearsay. There have been a number of cases of whooping cough and typhoid fever, a few cases of scarlet fever and a great many cases of diphtheria, with a large percentage fatal. The cases that were reported to me I attended to, placarding, disinfecting, etc., to prevent spreading to other families if possible. By far the greatest number of cases of diphtheria were in the 2nd and 3rd concessions, but there were cases scattered over the whole of the township. There was a family near Stouffville exposed to smallpox, which, by direction of Dr. Bryce, I quarantined.

At the present time (December) the township is quite free from contagious diseases.

G. M. FARWELL, M.D.,
Medical Health Officer.

MARYBOROUGH.

Medical Health Officer's Report.

During the year I have inspected a number of places which I expected were in an unhealthy condition, but in only two instances found them so. The cause was at once removed.

Contagious diseases were very few there, having been reported only five typhoid fever cases, with four recoveries and one death. There was only one case of diphtheria, with recovery of the same.

The people of Maryborough have reason to congratulate the Board for the manner in which they have acted during the season.

O. W. HUNT, M.D.,
Medical Health Officer.

MELANCTHON.

Secretary's Report.

The Board of Health for the Township of Melancthon beg leave to report that the general health of the township for the past year has been good, the death-rate being considerably less than last year. Last September a family living in the City of Toronto had a very malignant type of diphtheria. Members of the family who had not taken it were sent by railway to their friends in this township, without their friends knowing of the disease, and the children sent up mingled freely with the children of this neighbourhood. As a result five cases of a most malignant character of diphtheria broke out, and not until thirteen cases had broken out and five deaths took place could it be brought under

control. It was fortunate that the cases as they occurred were isolated at once. If it had happened in a more thickly populated part of the township, the result would have been very serious.

Had the family referred to been properly isolated and quarantined by the health authorities of the City of Toronto, we would not have had the disease and the loss of valuable lives therefrom in our township. We may therefore thank those self-eulogized and badly-named sanitarians of Toronto's Local Board for all the trouble.

JAMES BROWN,
Secretary.

METCALFE.

Medical Health Officer's Report.

I have much pleasure in submitting to you my annual report for the Township of Metcalfe for the year 1888.

I find a very great deal of difficulty in giving an accurate report of the contagious diseases that have been most prevalent in the township, owing, I think, to the want of attention paid by practitioners to the reporting of cases.

The general health of the municipality has been good, with the exception of a few cases of diphtheria of a very mild form ; none fatal.

In regard to the sanitary condition, the Sanitary Inspector made an inspection last spring, and attended to all the complaints during the summer.

A. NIXON, M.D.,
Medical Health Officer.

MIDDLETON.

Medical Health Officer's Report.

I beg to submit to you for your consideration my annual report of the sanitary condition of this municipality and the public health of its residents, as required of me by the statutes of Ontario. During the year past there has been a comparative freedom from all diseases of a contagious nature, and the public health has been fully up to the average. With the exception of a few slight outbreaks of diphtheria in the eastern and western portions of the township, very little disease of an epidemic character has visited us. The total number of cases of diphtheria would probably number about twenty-five or thirty, whilst the number of deaths from this disease was three in the eastern and probably an equal number in the western division. The causes leading to these outbreaks are unknown. In one single instance it arose from an imported case, and in all others no direct cause could be found, excepting a want of sufficient care in improving the sanitary conditions of the premises. In one instance the residence, a log-house, was built on the ground—no air allowed to circulate underneath the dwelling—insufficient light given by means of windows, thus causing a dampness of its walls within.

A marked improvement in the treatment and general supervision of diphtheria patients has also been visible. In every instance they were confined to a single house, and all intercourse between the dwelling and the public cut off, so that in no single instance, to my knowledge, did the disease spread to a second family or individuals other than the ones first affected. The custom formerly adopted of holding public funerals has also been abolished, and now when deaths have occurred, the remains have been almost immediately interred by members of the family or other persons not liable to become infected. Thorough ventilation and disinfection of houses has also added much to the freedom from this disease.

Measles and scarlet fever have been unknown in this district during the year. Varicella was prevalent, with no deaths.

During the autumn months a number of cases of typho-malarial fever occurred in the central and western divisions of the township, and several deaths occurred from this cause. For the most part these cases were found in low districts, where the land was new and much of the soil broken up for the first time. In at least one family the disease may be attributed to the water used for domestic purposes. In this instance a well had recently been dug near the corner of the house, where for years previous to this water and filth from the kitchen had been poured out and allowed to penetrate the soil, thus finding their way into the newly erected well.

Your Board of Health have done the township good service. During the early part of the year it became evident that the burying grounds lying adjacent to and in the village of Delhi, would become a nuisance if further burials in them were allowed. Your Board of Health held a meeting and very wisely decided to prohibit parties from burying in the same. This order has been enforced and a new cemetery has been purchased outside of the village, and many bodies transferred from the old cemeteries.

A second meeting was called in November to take into consideration the matter of compulsory vaccination. Not deeming it necessary that it should be made compulsory, they appointed a Medical Health Officer for the township, and gave notice through the newspapers of such appointment, that all who chose to do so might avail themselves of the opportunity to be vaccinated; and also provided for free vaccination of all persons not able to pay the necessary fee for the same.

On the whole I consider the sanitary condition of the township to be very satisfactory, and the general health of the people a matter for congratulation of the persons having charge of the same.

J. F. HOUSBERGER, M.D.,
Medical Health Officer.

MONO.

Secretary's Report.

I beg to submit to you the annual report of the Board of Health for the year 1888. There have been no contagious diseases reported.* There were some cases of supposed diphtheria; if they were of the real type they were exceedingly mild in their nature. No deaths occurred. Our Council has not appointed a Medical Health Officer; they considered that it was not necessary.

ANDREW HENRY,
Secretary.

MOORE.

Medical Health Officer's Report.

I beg to submit the following report for the township of Moore:

Nothing of importance occurred until the 9th of November, when the Board organized in response to a report of Dr. Ames, of Brigden, that a case of smallpox existed in an Indian camp, on a bush farm five miles from a village and a safe distance from any dwelling. The patient was at once isolated, the rest vaccinated successfully, and a strict quarantine established. Three weeks from the appearance of the rash, the cook, a

* If there was no Medical Health Officer to look after those cases, how are we to know whether they were or were not real diphtheria? Mere supposition in cases of contagious diseases is very dangerous. We hope that in future the lives of people will not be endangered by thinking the disease *was not*, when probably *it really was*, diphtheria.—[ED. REPORTS.]

delicate female, took ill with well marked premonitory symptoms of smallpox and died on the fourth day. Every possible precaution will be taken by our Board before releasing them from quarantine. The cause of the outbreak was a visit to Sarnia, where the disease existed, by the Indian first attacked.

The Board ordered all the school children to be vaccinated, which has been done. I was surprised to find that not more than 15 per cent. had been done before.

We received a visit from Dr. Lehman, your Inspector, who approved of all that had been done, and advised compulsory vaccination. Our Council have not taken any action.

On the 17th of November a mild case of varioloid occurred in a farm house, evidently as a result of a visit to Sarnia. As no new cases have developed, we hope the disease is stamped out in this township. Five cases of typhoid fever occurred in the first week of this month, within one mile of each other; cause cannot be traced.

The schools visited in this section have not the first sign of any means of ventilation, and the majority are in a filthy condition. The Local Board and Council are very remiss in their duty if they do not devise some means to remedy this disgraceful condition.

F. B. WILKINSON, M.D.,
Medical Health Officer.

MOSA.

Medical Health Officer's Report.

In compliance with the requirements of the Public Health Act, I have the honour to lay before you my annual report.

I am pleased to be able to report that the sanitary condition of the township is excellent. During the year the township has not been visited by any widespread cause of mortality or sickness beyond the ordinary causes that are at work from year to year, and over which we have no control.

The Board of Health met and organized during the year, and we are prepared to meet any emergency should such arise.

J. WALKER, M.D.,
Medical Health Officer.

MURRAY.

Medical Health Officer's Report.

I have the honour of submitting my annual report as Medical Health Officer of this municipality.

It affords me pleasure to state that the health of the township is good at the present time.

During the past year my attention has been called to several outbreaks of diphtheria, but, by the prompt and efficient action of your Board in regard to disinfection, isolation, etc., the disease has always been confined to the premises, with one exception, and that with fatal results.

During the year we had fifteen cases of diphtheria, one of which died; two cases of typhoid fever and two of scarlet fever, all of which recovered. One family of five were all down with diphtheria at one time, the cause being a filthy condition of the premises, which I am happy to state has been entirely removed. The other cases could not be traced to any local determining cause.

There have been no complaints lodged before me about nuisances of any kind, and I take great pleasure in stating that the township is at present particularly free from all those places which would readily generate disease.

I would ask your attention to the filling up of cesspools, old cellars etc. This has been done in the past with beneficial results. I would further ask your aid in the prevention of the erection of water-closets adjacent to wells, as several cases of sickness have occurred this year under my notice, due to this cause.

W. H. McKAGUE, M.D.,
Medical Health Officer.

McKILLOP.

Medical Health Officer's Report.

I have again the honour of submitting to you the annual report of the sanitary conditions of your municipality.

On May 28th the first meeting of the Board was held. At that meeting remedial steps were taken to remove the only nuisance complained of.

The Board also gave me instructions to have all the children attending the schools in the township vaccinated. I am happy to report that such instructions were carefully carried out.*

During the months of July and August an epidemic of dysentery broke out, and apparently spread over a considerable section of the municipality. It was of a severe type, and attacked alike both old and young, and was the immediate cause of several deaths. However, apart from this disease, your municipality has been fairly healthy, and at the present time I can congratulate you upon its immunity from any infectious disease.

W. HANOVER, M.D.,
Medical Health Officer.

Secretary's Report.

The Board of Health only met twice this year.

The nuisance complained of at the first meeting was a smell arising from a cheese factory and a pig pen in connection therewith. The factory was on one side of the road and the pig pen on the other.

The Board ordered the Medical Health Officer to vaccinate all the children in the various schools at the expense of the municipality, and at the meeting on the 17th Nov., he presented his bill of \$120 for vaccinating 480 children, and \$23.50 for vaccine, from Palmerston Vaccine Farm. The Board of Health gave an order on the Treasurer of the municipality for the amount. Some of the children were vaccinated the second time, and now report has it that there is not over 25 or 30 in the municipality that had the operation successfully performed. In one school, out of 20 vaccinated, only 3 have taken, and the next out of 58 vaccinated, only about 6 have taken. There were no certificates given nor required by the Board of Health. Of course the Board has learned something, but thinks that the knowledge so curiously obtained was dear bought.

JNO. C. MORRISON,
Secretary.

*As will be seen the Medical Health Officer distinctly states in his report that his instructions to vaccinate were *carefully* carried out. We suppose this means that vaccinations were successfully performed. If, however, there were 17 failures out of 20 vaccinations, and 52 out of 58, we fail to see the success of the movement. The Council should employ some person to visit all the schools, to ascertain the real state of matters, and note down the total number operated on and the number showing good marks.—[ED. REPORTS.]

McNAB.

Secretary's Report.

As required by the 24th section of the Public Health Act of Ontario, I beg leave to report :—

That scarlatina made its appearance in two or three different localities in the township during this year, and as far as known there were only two cases fatal. The physician in attendance did not report to me, but the way I received the information was by the registration of their deaths, and as the inhabitants in the localities where the disease was used every precaution to keep it from spreading, there was no necessity of the Board incurring the expense of enforcing any sanitary measures. I may state that the disease in general was of a very mild type, and was, therefore, not difficult to stamp out.

I am happy to report that our municipality continues to enjoy almost a perfect state of immunity from any kind of epidemic or contagious disease, and my long residence in the township warrants me in stating that unless disease is imported amongst us, no sanitary or other measures are required to be enforced by the Board of Health.

J. D. McNAB,
Secretary.

NICHOL.

Secretary's Report.

The Local Board of Health has the satisfaction of reporting that during the year now drawing to a close the general health throughout the township has been very good, no epidemic of any kind having been prevalent. Wherever any nuisance was ascertained to exist its immediate removal was attended to.

Dr. Paget, of Elora, was appointed Medical Health Officer and Sanitary Inspector for the municipality for the current year, and he has reported in writing to the Board that according to orders he had visited the House of Industry and found all sanitary arrangements in perfect order, and also the slaughter-house near Fergus in good condition.

JAMES McQUEEN,
Secretary.

NEPEAN.

Medical Health Officer's Report.

The general sanitary condition of the municipality will be found to compare favourably with the more healthy of those throughout the Province, there being, with the exception of the numerous slaughter-houses and the Holland Farm, no locality from which we might reasonably expect poisonous effluvia to so contaminate the atmosphere as to favour the spread of contagious diseases.

The former, some twenty in number, were personally inspected by me in company with the Local Health Officer, Wm. Gordon, in the month of August last, and found in each case a very satisfactory sanitary condition. Of the latter I have heard no complaints since our unsuccessful attempt to suppress the nuisance last March.

Owing to the fact that the law respecting the registration of contagious diseases has been very much disregarded, it is impossible to give any estimate of the number of such cases during the year.

Of diphtheria, the only contagious disease of which I received any returns, three cases have been so far reported, with a mortality of two.



No cases of typhoid have up to the present been reported, yet I regret that this is no indication of the prevalence of the diseases during the year.

At the request of the Public School Inspector, I inquired into a reported outbreak of scabies among the pupils of School Section No. 5 in September last. A close examination of all the children limited the trouble to three alone, all members of the same family. Exclusion of these from the school until reported free from infection by their attending physician, and a complete and thorough disinfection of the building reduced the danger of transmission to any of the others to a minimum; no more cases have since been reported from that source.

Two nuisances in the way of pig-styes too near dwellings, one in Mount Sherwood and the other in Archville, have been abated.

In conclusion I would congratulate the Board on the absence of any epidemic, and on the general healthfulness of the township.

W. FENTON GRAHAM, M.D.,
Medical Health Officer.

MISSOURI, EAST.

Secretary's Report.

The Board of Health of the Township of East Missouri, beg leave to submit their annual report.

The Board held its first meeting on the 11th February, at which it was resolved to get some large posters printed calling upon the people on or before the 15th May, to clean up their yards, to empty and disinfect their privy-vaults, and to abate all and sundry causes which might tend to disease; and also, requesting all persons who were aware of the existence of nuisances, or removable unsanitary conditions in their several localities, to send written notice thereof to the Secretary of the Board.

These notices having evoked no response and, there being no dangerous cases of sickness reported, the Board has not been called upon to meet.

There have been two or three isolated cases of typhoid fever reported, but in all cases they have been brought in from other localities, and have in no case extended beyond the individual first affected, and have in each case yielded to the remedial measures adopted by those in charge of them.

We are happy to be able to report that the health of our community has been quite satisfactory, and continues to be so at present.

C. R. COMMANDER,
Secretary.

NORMANBY.

Medical Health Officer's Report.

Normanby being favourably situated with regard to its drinking water supply and also its drainage, malarial and zymotic diseases are almost unknown. During the present year we have had an occasional case of typhoid fever, but in nearly all the cases the disease was contracted in other localities.

Diphtheria has also occurred sporadically but not epidemically. It appears to be difficult to completely isolate these cases, as neighbours can hardly be restrained from visiting places where disease exists.

Scarlet fever was almost entirely absent during the year.

Measles have not been troublesome.

The principal business done under the supervision of the Board of Health was an inspection of the sanitary condition of the villages, school premises, wells, butter and cheese factories.

The work of the Board seems to be appreciated by the public.

P. McLEAN, M. D.,
Medical Health Officer.

NOTTAWASAGA.

Secretary's Report.

As Secretary of the Board of Health of this Municipality, I beg to report as follows:—

Since the receipt of your favour of the 19th ult., the Board met and the Chairman reported that the Board had nothing to report except the very healthy condition of the township and its immunity from all contagious or infectious diseases during the whole year.

ANGUS BELL,
Secretary.

ONEIDA.

Chairman's Report.

The work of the Board this year has been very light, and we have had no meeting except the one to-day to submit the report. Each member of the Board took upon himself to attend to any matter in the interests of the public health that he deemed necessary, thus obviating a regular meeting of the Board and saving expense.

The removal of the gentleman appointed as Medical Health Officer, Dr. A. K. Sturgeon, has left us without a report of the sanitary condition of the municipality. We are persuaded, however, that no disease exists that needs the interference of the Board. If any has existed during the year, the persons mentioned in sections 46 and 49 have either, through wilfulness or ignorance, failed to obey the instructions of said sections; and of course nothing was given us to do in that line. The only work of any kind performed during the year was the ordering of certain dead carcasses buried. I have pleasure in stating that the expenses of the year is much less than that of any other year.

MATTHEW SPRATT,
Chairman.

OPS.

Medical Health Officer's Report.

The health of the inhabitants of the Township of Ops continues so exceptionally good that I have nothing of sufficient importance to justify any lengthy report.

During the past year no epidemic or contagious disease, except a few cases of whooping cough, has shown itself, and we may again congratulate ourselves on immunity from this class of disease.

THOMAS W. POOLE, M. D.,
Medical Health Officer.

ORILLIA—NORTH AND SOUTH.

Chairman's Report.

In accordance with statute your Board of Health beg to report that the work of your Board has been very light for the year that is now drawing near to an end. We have had occasion to meet only twice. There has been no communications of nuisances of any sort, with the exception of one dead animal, east of Washago, which was promptly removed at the expense of \$1.00 to your municipality. Your Medical Health Officer made no report to your Board this year, for the reason, I suppose, that he had nothing of any importance to report. Therefore your Board has great pleasure in congratulating you on the good sanitary condition of your municipality. There has been no infectious or contagious diseases that your Board have heard of.

ARCHIBALD THOMSON,
Chairman.

OXFORD, EAST.

Medical Health Officer's Report.

My official work during the year has been very light, as the township has been almost free from contagious diseases. There have been a few cases of typhoid fever, all confined to one family at Oxford Centre, with one death; the remaining members who were attacked are either convalescent or becoming so. There have also been a few cases of diphtheria of a mild type, but no deaths. I would strongly urge the adoption of the suggestion made by the late Dr. Thrall, in his report for 1887, with regard to the introduction of the dry-earth system of the disposal of sewage in our public schools, as there is no doubt that, in many cases, diseases arise from germs emanating from the present water-closets. If the same system were more generally adopted in private houses it would be conducive to the health of the people.

J. McLURG, M.D.,
Medical Health Officer.

OXFORD, NORTH.

Secretary's Report.

The Local Board of Health for the township of North Oxford beg to report as follows:—In accordance with the provisions of the Public Health Act, the Local Board of Health for this township was organized and held its first meeting on February 4th, 1888. The Sanitary Inspector was instructed to make a tour of the township and post up notices requiring the inhabitants to place their premises in a sanitary condition, on or before the 15th of May. He was also instructed to visit all cheese-factories and slaughter-houses not less than three times during the year. There is now only one slaughter-house in use in this township, of which there was some complaints during the warm season of the year. The Inspector was directed to make frequent visits to the premises and see that they were kept thoroughly clean, and the offal removed within twelve hours after each killing, and not to allow hogs to be kept on the premises for the purpose of feeding the offal to. There has been no complaint of the cheese-factories or any other places in the township, and so far as our information extends of the sanitary condition of the township there is no reason to complain. The fertilizing works of the Ingersoll pork factory in this township has been closed all season.

There have been a few cases of diphtheria, typhoid, whooping cough, and one case of scarlatina, in all of which proper precautions were taken to prevent their spread.

ABRAHAM HILLSDON,
Secretary.

 OXFORD, WEST.
Medical Health Officer's Report.

I have the honour to report that, with the exception of an epidemic of measles, the township of West Oxford has been fairly exempt from contagious diseases. The record shows a slight increase in the number of cases of malarial fever over last year, but of a mild type, with two cases of typhoid and one of diphtheria.

The only characteristic of the epidemic of measles worthy of mention was its extreme contagiousness, old and young becoming victims after the usual period of exposure and incubation. Out of 116 cases there was one death from acute phthisis, developed as a sequelae.

I would recommend that means be taken to make the people better acquainted with sanitary laws, both advisory and mandatory, by the publication on slips or tracts for easy distribution of portions of such law as relates to the conditions usually surrounding dwellings in the country and villages.

I believe ignorance of these conditions and of the importance of avoiding or remedying them, and of the use of simple disinfectants, is very general and requires that measures should be adopted to give a better knowledge of the points here indicated. I would further recommend the following changes to increase the efficiency of the Board of Health, viz: Stated times of meetings of the Board, more thorough inspection, and a salaried Medical Health Officer.

J. D. BROWN, M.D.,
Medical Health Officer.

 PELHAM.
Secretary's Report.

Acting under resolution passed by the Board, the chairman-elect and secretary inserted notices in the local papers "Urging upon all physicians practising in the township, and all public school teachers engaged therein, as well as all parents and heads of families owning or occupying premises in the township, the pressing necessity of a strict observance and enforcement of the public health by-laws and sanitary regulations in force therein." Also, requesting "physicians and teachers to report to the officers of the Board with the utmost promptness every case of infectious or contagious disease, and to be particular that in every case cards of warning are posted up as required by law." Also, "urging persons who may be annoyed by the existence of putrid and decaying animal or vegetable matter to report existence of same to Board."

The secretary's memorandum book has the following entries of matters reported to him:—

One public school teacher reported a case of measles or scarlatina having occurred in the school. The child was kept at home till she recovered. The existence of dead animals unburied was complained of in three different parts of the township, and the Sanitary Inspector got them buried in each case by the owners. In one instance there were fourteen carcasses on one farm. As in former years Dr. Birdsall was about the only physician who took the trouble to report infectious diseases. His report included two cases of scarlet fever and three of diphtheria among children. No report as to death or recovery of these patients. The only other case reported was by Dr. Emmett—a scarlet fever case. The dwelling was placarded by the Sanitary Inspector who acted under instructions from the Medical Health Officer. This is the only case reported where card of warning was put up. I am personally cognizant of three or four cases of typhoid fever, but none of them were reported by the physicians in attendance.

J. C. CROW,
Secretary.

PERCY.

Medical Health Officer's Report.

I have to report seven cases of diphtheria and two cases of typhoid fever occurring in the township of Percy in the year 1888. The diphtheria cases were of a most malignant type, but by prompt isolation the disease was confined to the houses in which the first cases occurred. Outside of these cases of infectious diseases the sanitary condition of the township has been good in every respect.

J. M. CLEMENSON, M.D.,
Medical Health Officer.

PICKERING.

Secretary's Report.

The Local Board of Health for the municipality of the township of Pickering beg to present their annual report as follows :—

We are pleased to say that although the number of cases of infectious diseases occurring in the municipality during the present year has been large, yet the number of deaths resulting therefrom has been small.

There have been thirty-two cases of diphtheria reported to the Board, of which four resulted fatally. Of scarlet fever nine cases were reported; none resulted fatally. Twelve cases of typhoid fever were reported and known to exist, in all of which cases the patients recovered. The Board feel pleased to be able to report that the rate of mortality has been very low. This result we attribute very much to the vigilance of our inspectors.

Our inspectors were called upon on three several occasions to visit localities where horses and cattle had died or been killed. In two of these instances the animals had been killed by trains on the Grand Trunk and Canadian Pacific Railways respectively, and the calls in all instances were made to have the animals buried.

DONALD K. BEATON,
Secretary.

PROTON.

Chairman's Report.

It is with pleasure that I inform you that the general health of our people has been good during the year. With one exception there has been no case of infectious or contagious disease brought to our notice. In this one case a family developed symptoms of malarial typhoid on the return of a daughter who came home ill from Caledon township. Several of the family were prostrated with the disease, and one female died. Dr. McWilliams attended the family and reported a mild form of typhoid with little danger of spreading. He looked after the requisite sanitary precautions. No new cases have appeared in the vicinity.

In first week of July we visited and examined the three cheese factories in operation and found all in a creditable state, with suitable fittings and the premises clean and suitable for the manufacture of good, wholesome cheese.

Each member of our Board having had supervision of a township division has earnestly striven to impress upon the people the necessity of having all premises, schools, etc., and the water for drinking purposes as pure as possible. Our people are gradually coming to understand and act in conjunction with the Board for the general health of the township.

SAMUEL ROGERS,
Chairman.

PUSLINCH.

Sanitary Inspector's Report.

I am happy in being able to state that the general health and sanitary conditions of this township are good. Diphtheria was somewhat prevalent in the month of December, 1887, and the early part of this year. Three cases were fatal. The disease was, in the first place, imported from Galt. The usual precautions were taken to prevent its spread. An epidemic of measles swept over the village of Morriston and vicinity in August and September. The school was closed for a time. No deaths occurred.

During the present year inspections were made in May and October of all villages, slaughter-houses and school properties, including wells and water-closets in connection with the latter. I was pleased to see that, with a few exceptions, our people had their premises well cleaned and, as far as I could see, in a good sanitary condition. All our school sections are likewise in a good condition. Slaughter-houses have been inspected at intervals and found to be generally satisfactory.

Early in May I visited all parties in this municipality known to be engaged in the sale of milk, inspected their cow-stables or byers, and made enquiries as to kinds of food, quality of water, etc.

ANDREW MUNRO,
Sanitary Inspector.

RALEIGH.

Medical Health Officer's Report.

In presenting to you my annual report as Medical Health Officer for the township for the year 1888, I have to congratulate you on the sanitary condition of the municipality. During the present year your township has not been visited by any widespread cause of mortality.

In diseases of an infectious nature there has been quite a number of cases of measles, whooping cough, etc., but the rate of mortality has been very small; there have also been a few cases of diphtheria and typhoid fever, and in all cases the houses were properly placarded.

Several complaints were made about the unsanitary condition of the slaughter-house kept by Peter Cramb, in the village of Buckhorn. In company with a member of your Board I visited this slaughter-house and found it in an unsatisfactory condition; the slaughter-house and butcher shop were in one building, only a slight partition separating them. The slaughter-house was not kept in a fit condition by any means. In the yard adjoining the slaughter-house, right in the middle of the village, were a number of pigs kept, and the entrails were fed to them. In the yard was a large heap of heads, bones, etc., emitting a fearful stench; here also the refuse material was boiled and rendered. All this was going on within twelve feet of some of the neighbours' houses. I at once ordered the removal of the slaughter-house and the yard and buildings thoroughly cleaned up, which was done forthwith. I also had to order the removal of several pig-styes throughout the township, such being in too close proximity to the dwelling houses.

JOHN CHARLES BELL, M.D.,
Medical Health Officer

REACH.

Secretary's Report.

I have very much pleasure in being able to report that the sanitary condition of this municipality is extra good, and I attribute this in a great measure to the action of the Board of Health a few years ago, they having procured several hundred copies of the

by-law and had one copy left by the assessor at every house and the provisions of said by-law explained to the inhabitants. With a very few exceptions a hearty co-operation of parties interested in complying with the wishes of the Local Board of Health was given. The result is that our municipality is free from any infectious disease this year. There have only been a few cases of typhoid fever reported during the year, and in every case proper provisions were made by the Board to keep it from spreading.

WILLIAM SPENCE,
Secretary.

ROCHESTER.

Chairman's Report.

The Board has not experienced the least trouble in carrying out the provisions of the Public Health Act, as the residents of this township have at all times shown a cordial disposition to carry out whatever orders or suggestions the Board or the Medical Health Officer were called upon to make. The sanitary condition of the township and the health of the inhabitants are in a very good condition.

Diphtheria has broken out three times, but owing to the manner in which the cases were watched by our Medical Health Officer and the houses placarded, the disease was strictly confined to three houses; there were two deaths.

Later on our Medical Health Officer accidentally discovered a case of typhoid fever, and reported that two physicians had attended the patients, but, notwithstanding the strictness of the Act, failed to report the case. The patient recovered, and our Medical Health Officer attended to the proper disinfection of the house and the disease was checked there. The sentiments of the people are to assist the Board in anything regarding the welfare of the public health, but we regret to have to state that some of the physicians practising in our municipality often neglect their duty and should be prosecuted for their neglect, under the Act.

ANDRÉE DUROCHER,
Chairman.

RYDE.

Secretary's Report.

On behalf of the Local Board of Health for the Township of Ryde, District of Muskoka, I beg to report:—That the respective members of the Board were duly appointed by the Council. The first six months of the year passed without any need of action owing to the perfect freedom from disease which the Township enjoyed, but unfortunately the last six months have not been so. In July diphtheria broke out in two families, and before the Board were fully prepared to meet it, it had spread to three other families, all of whom were connected by marriage. At the request of the Board the Council immediately appointed a Sanitary Inspector, with whom alone communication was held with the houses containing the disease and the general public, thus shutting off any danger of infection to others. The result of this outbreak was the death of eight children. In September our Medical Officer inspected all the persons having had the disease, the premises where it had been, and gave us a clean bill of health. Early in October the disease again broke out in one family living in the vicinity of those who had suffered before, and the Board again caused the regulations to be put in force more rigidly than before, with the result that though there were three deaths in that family, it was confined to the one house. That house was stripped internally and most thoroughly disinfected. I am happy to say that there has been no return of the disease, and we are hoping that we have once

again returned to our usual healthy condition. With this exception the health of the Township has been good, other deaths that have occurred having been from old age and infantile diseases.

J. G. TAYLOR,
Secretary.

SANDWICH, EAST.

Medical Health Officer's Report.

I beg leave to submit the following report of the sanitary condition of the Township for the year:—During the year thirteen cases of diphtheria and fourteen cases of scarlet fever occurred. Measles also of a severe type prevailed. In other respects the sanitary condition of the Township has been good, and is excellent at the present time. With regard to public vaccination, I would suggest putting off the affair until next spring, there being at the present time no epidemic in this vicinity, and consequently no urgent necessity exists for carrying out the orders of the Provincial Board. In all cases of contagious diseases the requirements of the law have been fulfilled to the letter—isolation and disinfection.

H. R. CASGRAIN, M.D.,
Medical Health Officer.

SARAWAK.

Chairman's Report.

The Board regret to state that typhoid fever has been prevalent most of the summer, no less than fifteen cases in and around Brooke Village having been reported by your Inspector. There have been two deaths. No report having been made by the doctors attending, your Board cannot say with certainty whether all these cases were typhoid or not. With the exception of the above, the sanitary condition of the Township has been fairly good. The Board, as usual, has had trouble with the slaughter-houses, but steps were taken and means used to put a stop to the nuisance. The proprietors were summoned to appear before a Magisterial Court to hear and answer complaints laid against them. The matter was settled by mutual agreement, the proprietors paying expenses incurred. Since then no complaints have been made.

The Board has had three meetings this year, mainly in connection with the slaughter-houses. Your Inspector has been diligent in the discharge of his duties.

I have pleasure in stating that your Medical Health Officer, Dr. O. E. Barnhart, continues as usual indefatigable and attentive in discharge of the duties devolving on him.

A practice exists which is very prevalent and injurious to public health—no doubt kindly intended—of persons crowding into a house where sickness occurs. Much caution should be used in this matter, not only in regard to the person affected, but in view of the great danger of contagious diseases being spread in the community.

Your Board urge on School Trustees the absolute necessity of keeping school privies in a perfect sanitary condition; on inspection some of them were found to be in a most disgraceful state.

WILLIAM ROY,
Chairman.

SARNIA.

Medical Health Officer's Report.

I have the honour to submit my report for the year 1888:—

There has been comparatively little sickness of any kind in the Township and great freedom from infectious disease during the year. In the month of November scarlet fever

made its appearance in a family at Cole's Corners, on the second concession, and, I regret to report, proved fatal in one case. I have not yet been able to trace the contagion to its source, but by strict quarantine and thorough disinfection the disease was confined to the family where it first appeared.

I casually learned that two or more mild cases of diphtheria existed in School Section No. 5 in the month of November, but were not reported to the Board of Health, an omission or neglect which I trust shall not again occur under similar circumstances in the township.

On the appearance of a number of cases of smallpox in the Town of Sarnia vaccination was largely resorted to by the inhabitants of the township, and section 15 of the Act respecting vaccination was proclaimed in force by the Reeve, as urged by the Provincial Board of Health, with a degree of success as shown by the detailed statement which I have already furnished to the Local Board of Health.

I would urge respectfully upon the Trustees of the different School Sections in the township to continuously require that all children before being permitted to attend the schools shall produce satisfactory evidence of successful vaccination, as well for the protection of the public as to draw the attention of parents to the importance of the subject.

The practice of hauling refuse from the Town of Sarnia and depositing it in open spaces referred to in my last report has not yet been altogether discontinued. No complaints have reached me during the year regarding the slaughter-houses or the fisheries on the River St. Clair, referred to also in my last report. I therefore infer that the unpleasantness formerly complained of has been abated, due I believe to the efficient oversight of the Sanitary Inspector, Mr. Copland.

The dairymen and vendors of milk have taken out their licenses, and are willing to comply with the very reasonable conditions imposed therein by the Board of Health.

A. MACLEAN, M.D.,
Medical Health Officer.

SCOTT.

Medical Health Officer's Report.

While bringing to your notice the work of the past year, I feel in the first place that we may congratulate ourselves that we have kept our skirts clear of the terrible disease of smallpox which has been almost in our midst, and I feel certain that this has been due to the careful vigilance exercised by your Board. Had the township been without the Board of Health, as in past years, no doubt we would have suffered greatly from the scourge. I might say in this connection that public opinion in this township has changed very much in its attitude towards your Board. As an illustration: Two years ago when vaccination was urged upon them, many of the people looked upon it as a needless expense. This year, however, the same people who so strongly opposed it then have been wishing for such a chance as was given them. Now that the people are beginning to appreciate our work, we may reasonably expect in a short time the health standard to reach a high degree in this township.

I must complain here of the actions of medical men attending cases of contagious diseases in this township not reporting to our Board at once the existence of said diseases. When discovering the nature of the case it would help materially to prevent its spread if the Board had a knowledge of it, but in many cases the Board does not become aware of such disease until it is spreading rapidly. If we knew of first cases we could adopt proper steps to have them scientifically attended to, and thus check them at once. I must urge this matter particularly, and suggest that delinquents be legally proceeded against. We have had sixteen or eighteen cases of typhoid fever this year, and a committee having been appointed to investigate the cause duly reported to your Board. The report was printed and distributed through the township. There have

been no cases of scarlet fever or diphtheria. In conclusion, I trust that the good work which has been begun will be carried out, and the township maintain its high reputation for the good sanitary condition which it has lately enjoyed.

D. CAMPBELL, M.D.,
Medical Health Officer.

SENECA.

Medical Health Officer's Report.

I have the honour to make my final report for the year 1888, and to say that the sanitary condition of this township for the past year has been exceptionally good. There have been no epidemics of any kind, and the rate of mortality has been very low. Thirteen deaths from all causes, old age included, is the number reported to the township registrar up to date. No diphtheria, scarlet fever or measles have been reported; neither has any breach of the Public Health Act been brought to my notice.

ROBT. H. DAVIS, M.D.,
Medical Health Officer.

SOUTHWOLD.

Secretary's Report.

I have the honour to make the fourth annual report, and in doing so beg leave to state that again this municipality has been highly favoured in the last year, only one case of infectious disease having been reported, that of typhoid fever, which the patient contracted while visiting in the town of Sarnia. Cheese-factories, slaughter-houses, school houses and premises were all inspected in the month of May last, and upon the whole were found improved.

Sanitary improvements in slaughter-houses were strictly enforced. There were two complaints made to the Board of existing nuisances, which were speedily removed. The residents of this municipality are much opposed to compulsory vaccination, on account of vaccine used some two years ago having had a bad effect, so much so that some who were vaccinated came near losing their lives. One young man died, and his death was partly laid to bad vaccine. Others had fearful arms that I saw myself, and in many instances about as bad as the real. The sanitary condition of this municipality is steadily advancing; the people are becoming educated in sanitary matters.

M. CAMPBELL,
Secretary.

STAMFORD.

Medical Health Officer's Report.

The past year has been entirely exempt from any epidemic, and has been a most remarkably healthy one, having only had eight cases of diphtheria, which were of a very mild character, and one case of measles.

After the attention of the Board of Health had been drawn to the necessity of issuing licenses, by the Secretary of the Provincial Board of Health, to milk vendors, six being all there were in the township, they were notified of the same. Only one dairyman, however, applied for and received such license.

At a meeting of the Township Council, at the time of the smallpox scare in Buffalo, a public vaccinator was appointed by that body. A proclamation was issued by the reeve; a notice was ordered to appear weekly in the county paper, and posters were scattered through the township to the effect, that "all persons applying therefor would be vaccinated free of charge; those neglecting to do so, or of shewing a certificate of having had it done within seven years, would be liable to the penalties laid down in the Health Act." So far, only about one hundred and forty have been vaccinated. People seem to have a great repugnance to the operation.

I have been informed by the Inspector that the slaughter-houses are kept in as cleanly a condition as possible, and that the cow byres were in a proper state.

Believe the township to be in an excellent sanitary condition in all respects.

JOHN M. DEE, M.D.,
Medical Health Officer.

STEPHEN.

Secretary's Report.

During the forepart of the year there were a few cases of diphtheria, and later on some cases of scarlet fever. Of late there were quite a number of cases of typhoid fever, some terminating fatally. The usual disinfectants were employed by the doctors, and our Sanitary Inspector was directed to visit the locality, which he did, and insisted on his instructions being carried out, which resulted in the disease being arrested in that locality. In one family there were six down with the disease, and although it is very bad around us, this locality has had but comparatively few cases.

Our Medical Health Officer some time ago moved away; we have not appointed another yet.

The doctors have been pretty punctual in giving notice of diseases, and I have attended to putting up cards.

C. PROTTY,
Secretary.

STRONG.

Secretary's Report.

The Board of Health for the township of Strong beg leave to report for 1888 as follows:—At the first meeting in the year Chas. A. Toole, M.D. was appointed Medical Health Officer, and Daniel Grummett Sanitary Inspector. As the population is not very dense, we have been comparatively free from contagious or infectious diseases. One or two cases of typhoid fever have occurred, but every precaution was taken by the Medical Health Officer to confine the disease, and was successful in preventing it spreading. The Sanitary Inspector has been alive to his duties in attending promptly to the removal of anything that might be detrimental to the public health, and altogether the sanitary condition of the township has been and is now very good.

JOHN CARTER,
Secretary.

SULLIVAN.

Medical Health Officer's Report.

I beg to present my first annual report in accordance with the provisions of the Public Health Act of 1884, and in doing so it gives me pleasure to be able to state that during the past year our municipality has been exceptionally free from cases of infectious disease. It is indeed gratifying that, unlike a few years ago when so many deaths occurred from an epidemic of diphtheria in this township, not a single case of this disease has been reported to your Board. Only one case of typhoid fever was reported, and this one happily recovered.

Cases of communicable skin disease amongst the children attending the public schools have been quite numerous, but by isolating those affected and giving them proper treatment, the number of cases are rapidly diminishing. I would respectfully call your attention to the fact that but very few of the children in this municipality have been vaccinated, and as smallpox has lately been in Toronto and vicinity, I would deem it wise to encourage parents to have their children vaccinated, and thus secure comparative immunity from one of the most loathsome of diseases.

GEO. J. DICKISON, M.D.,
Medical Health Officer.

SUNNIDALE.

Chairman's Report.

The Local Board of Health, Medical Health Officer and Sanitary Inspector for this township were duly appointed at the first meeting of the council for 1888.

In making our report we feel thankful in informing your honorable Board that this division has been exempt from any outbreak of dangerous diseases for the past year ; no smallpox, diphtheria or typhoid, and the deaths have been of the ordinary class occurring in a very healthy community.

Our Medical Health Officer has no report to make.

WILLIAM SWITZER,
Chairman.

SYDENHAM.

Medical Health Officer's Report.

In presenting to the notice of this Board the sanitary condition of the township for the past year, I would first refer to two cases of diphtheria which occurred last January. One of the cases was near Woodford, and had been ill for some days. On examining his throat during my first visit to him I found considerable tumefaction and membranous deposit, especially over the tonsils and even extending into the nasal cavities. I applied the remedies but the boy died from strangulation two days after. This case could, I think, be traced as coming from similar cases in Galt. The other case was in Annan, but I could not trace its source ; this one recovered after considerable trouble. In both cases disinfectants were freely used, and the cases did not spread, although about the same time as the one in Annan, there were several cases of very severe sore throats around there.

The next disease of an epidemic nature coming under our notice was several cases of measles, but being of a mild type required very little treatment ; all of them recovered.

In August there came under my care two cases of bilious remittent fever which lingered on for two or three weeks, and both finally recovered without going into the typhoid form.

Those were the last cases worthy of observation, and at present as far as is known to me the township is free from any disease either of an epidemic or endemic nature worthy of consideration.

A. O. SLOANE, M.B.,
Medical Health Officer.

THEDFORD.

Secretary's Report.

During the year the Board has held five meetings. * Our Sanitary Inspector, I believe, has regularly transmitted to the Provincial Board the returns (monthly) of all cases furnished him by our M.D.'s, from which you will see that during the months of February, March and April there were several cases of scarlatina and fever—three of the former fatal, and a few cases of the latter up to November. From June to September a case or two of whooping cough, cholera infantum and diarrhoea, and one case of cholera morbus.

I believe everything statutory has been duly attended to.

During the first half of May some 120 notices were served upon parties here to attend to their wells, privies, manure heaps, etc., which had been reported by our Sanitary Inspector. Subsequently all these places were again inspected and reported as being satisfactory. Recently some new arrivals had commenced digging privy pits too near their dwellings and wells, and have been warned in time to correct their mistakes.

For a year or two the village has suffered to exist a nuisance from the refuse of a cider mill just outside our limits on the north, lying in a mass and fermentation thereby producing a bad smell, which our inspector promptly looked after; otherwise the public school would have had to close.

We are no longer troubled with badly kept slaughter-houses, unburied animals and other former nuisances.

MARTIN WATTSON,
Secretary.

THOROLD.

Medical Health Officer's Report.

In accordance with the provisions of the Ontario Health Act, I beg leave to submit my second annual report for the township of Thorold.

In connection therewith I would beg leave to say that the past year with us has been an eventful one in sanitary matters. The slaughter-houses and other institutions of a similar nature situate in our municipality have received the necessary share of attention, and I am pleased to be able to state that our sanitary condition is excellent.

We had the honor of a visit from Dr. Lehman, who made the request that our Board take immediate steps to have a thorough system of vaccination put in force and carried out.

The matter was duly laid before the Board and action taken thereon. A resolution was passed by the Board requesting the reeve to issue a proclamation declaring the Act relating to compulsory vaccination to be in force; but before the reeve had taken action

*We have not received any disease reports from the Sanitary Inspector. There must be a mistake somewhere. [ED. REPORTS.]

in the matter, the Board again met and rescinded their action of the previous meeting, and referred the question of vaccination to the incoming Board for 1889, when I hope the matter will receive prompt attention, although I regret that action was not taken at once.

H. PARK, M.D.,
Medical Health Officer.

TUCKERSMITH.

Secretary's Report.

The Local Board of Health for the Township of Tuckersmith has the honor to report as follows :

That during the year no information of any nuisance or unsanitary condition within the jurisdiction of this Board of Health has been given, nor any complaint made to any of its members. This Board-reports with pleasure the manifestly improved disposition of the people to submit to all necessary regulations, and to assist in establishing better sanitary conditions.

Not a single case of any of the malignant diseases mentioned in section 77 of the Public Health Act, has come to the knowledge of the Board ; and it is believed that not a single case exists or has existed during the year in this division, although some of these diseases visited with considerable virulence some of the neighbouring municipalities.

We do not claim that the happy state of affairs is directly attributable to the labors of this Board, but rather to the good sense of the people who read, and, what is more to the purpose, receive much more than formerly of the doctrines and philosophy of the laws of health. We commend those in authority for their endeavor to keep before the minds of the people the close connection that exists between a people's health and a people's care and cleanliness.

SAMUEL SMILLIE,
Secretary.

TURNBERRY.

Medical Health Officer's Report.

In compliance with "The Public Health Act," I have the honour to submit to you the following report of the Township of Turnberry for the year 1888 :

During that period there has been no epidemic of any infectious or contagious diseases, no cases of any zymotic disease having been reported to me during the year by any of the medical men who practice in the township. I think I may safely say that the rate of mortality has been less than during either of the two preceding years ; and the general sanitary condition of the municipality will compare quite favourably with that of any other rural section of the Province. The only case requiring a special medical inspection was that of an old wooden structure—for years used as an hotel—situated in the town plot of Wingham, in which there were said to have been several cases of typhoid fever. Mr. Lammont, the inspector, and myself visited the premises last February where we found one severe case of typhoid fever. There was every evidence of a great deal of filth and dirt about the place ; a leaking roof and very much rotting vegetable matter in the shape of decaying flooring, sills, etc. Foul smells and contaminated air prevailed in every room. We reported the place totally unfit for habitation. While there is much cause for gratitude that the general health of the township has been so good during the year, yet I am satisfied that very much may be done to improve the sanitary condition of the municipality. There is great danger of disease germs being propagated through care-

lessness in the management of cheese factories, creameries, piggeries and slaughter houses. These establishments need to be closely watched, and nothing but thorough cleanliness and the free use of the most potent disinfectants will secure the best sanitation in such places.

W. B. FOWLER, M.D.,
Medical Health Officer.

USBORNE.

Medical Health Officer's Report.

We have reason to congratulate ourselves that the health of our district has been so good during the past year.

The only epidemic which became at all general was measles. This disease spread from school section to school section and from house to house during the spring months; but, notwithstanding its prevalence, it caused not a single death.

In the event of another outbreak we should be more on guard, and isolate affected families; for contrary to the general public opinion, it is not the harmless disease it is thought to be. It has proved in many cases to be the exciting cause of very serious lung trouble.

Scarlet fever was introduced into our municipality, in the month of September, by a gentleman who had been camping at Grand Bend. It was carried to his sisters and from there to the township of Logan, when unfortunately a child fell a victim to the disease. Had proper sanitary precautions been observed the disease might have been confined to the banks of Lake Huron.

Typhoid fever made its appearance in three houses during the fall months, and in each claimed a victim. One case was brought from a neighbouring municipality contrary to law. We should endeavour to prevent such a recurrence.

We have had no cases of diphtheria this year.

It would be very much in the interests of the public health, if all medical men would comply with the provisions of the Health Act and notify the Medical Health Officer of such cases of contagious and infectious disease as they may be called upon to attend.

The welfare of the community would be greatly advanced if all children in the Public Schools not having a good vaccine mark, were vaccinated at the expense of the municipality.

The Sanitary Inspector performed his work carefully, and from his reports I am led to believe a great improvement has taken place in the condition of the school-houses and their surroundings.

It has been urged by the central authorities (and, I think, with very great reason), that a stricter supervision be kept over slaughter-houses with regard to the cleanliness of such places, the disposal of offal and the slaughtering of diseased cattle.

Hoping that we may still increase our endeavours to promote the health of the community.

W. IRVING, M.D.,
Medical Health Officer.

VAUGHAN.

Medical Health Officer's Report.

The sanitary condition of the township is very good, there having been no epidemics of any kind. Farmers and others have shown much more care in regard to their houses and outbuildings. Some isolated cases of typhoid this fall over most of the township. All the precautions were used to remove cause and prevent spread. At the present time the general health of the township is good.

ROWLAND B. ORR, M. D.,
Medical Health Officer.

WAINFLEET.

Medical Health Officer's Report.

With the exception of whooping-cough in the western part of the district, the township is free of any epidemic disease. The whooping-cough is of a mild nature and as yet unattended by medical skill.

During the past year there have been seven cases of diphtheria, four of scarlatina and three of typhoid fever, but no deaths from the same. In each instance the precautions usually adopted were enforced and the disease confined to those primarily attacked.

This year I met with no unwillingness on the part of the people to having their houses placarded when necessary, and last year less than the year before. They agree that it is desirable and for the public good. A fact that makes the duties of a Medical Health Officer not unpleasant to perform.

On July 31st our Board convened, having been communicated with by the Secretary of the Provincial Board. This was our first meeting since being organized, and the principal subject discussed was the advisability of vaccinating the pupils of the thirteen schools in the township. It was decided to have it done owing to the likelihood of smallpox reaching here. As soon as the schools opened after vacation each one was visited, and every pupil present who did not show marks from vaccination two years ago, was then vaccinated; but strange to say that, although the virus was obtained direct from the Ontario Vaccine Farm at Palmerston and used before it was a week old, a very small percentage of them "took." A large number of them have been revaccinated, but with poor success. Since the weather has become cooler the virus acts more efficiently, and those vaccinated during the last two weeks have nearly all taken.

There has been no sanitary inspection of the township made yet. The members of the Board seem to think they know there is no use of it, as they are around so much and can see nothing wrong. In fact our township is well drained, not over populated and usually very healthy.

W. B. HOPKINS, M.D.,
Medical Health Officer.

WALLACE.

Medical Health Officer's Report.

In compliance with the requirements of the Public Health Act, I beg leave to submit my annual report:

There have not been any cases of contagious or infectious diseases reported to me by any practitioner during the year.

To my own knowledge there was only one case of diphtheria in the township during the year.

The general health of the inhabitants during the year past has been good.

I have pleasure in reporting the absence of nuisances of any kind.

Vaccination has not been performed in any case so far as I am aware, and I would beg leave to draw the attention of the Board to the necessity of a more general attention to regular vaccination, especially in view of the fact of smallpox having prevailed in some localities during the year.

JOHN STANDISH, M.D.,
Medical Health Officer.

WATERLOO.

Sanitary Inspector's Report.

In accordance with instructions received from the Board at the first meeting held this year, I inspected the premises, dairying utensils, stables and cows of all dairymen and milk vendors within this municipality, and I beg to report that I found their premises

all in a good sanitary condition, it being necessary in only one or two instances to make any suggestions where the sanitary condition of the surroundings might be improved. The cows are all well-cared for and fed mostly on farm produce. In a few instances during the winter months brewers' grains were fed along with the ordinary food of the farm. Dairymen who had used the brewers' grains all agreed that they increased the quantity of the milk, but none believed that they improved it in quality.

The cows were all in a thriving, healthy condition and free from tuberculous or any contagious or infectious disease. The methods of keeping, cooling and delivering the milk were all that could be desired. In one instance the cows were fed both summer and winter in the stables, and judging by their appearance and the quantity of milk which they gave, it is the most profitable way of feeding. The owner warms the drinking water for his cows in winter, and feeds only farm produce. All his premises are kept very clean and tidy. I found little or no objection to the means the Board has adopted for making the inspection. I also inspected the various slaughter-houses in the municipality at the same time, and am sorry that I cannot report them all to have been in a sanitary condition at the time I inspected them. Some of them were in a first-class condition, but in others the refuse was allowed to accumulate too long, or the hogs that consumed it were kept too filthy. The owners always cleaned up their premises when requested to do so, but sometimes forgot to keep them clean afterwards.

I have had no complaints of any other premises being in an unsanitary condition, and have had no infectious or contagious diseases to deal with.

WILLIAM COWAN, V.S.,
Inspector.

WAWANOSH, EAST.

Medical Health Officer's Report.

I have the honour to report, as Medical Health Officer for the Township of East Wawanosh, that this township has been singularly exempt from endemic, epidemic or contagious diseases during the past year. That no difficulties have arisen under the administration of the Public Health Act, and that the inhabitants, even as regards the incursions of diseases of a more preventable type, have been highly favoured during the year 1888.

WILLIAM SLOAN, M.D.,
Medical Health Officer.

WELLESLEY.

Medical Health Officer's Report.

In conformity with the Public Health Act of 1884, and amendment thereto, I beg to submit my annual report as follows :—

During the year the Board of Health held four meetings, at each of which business of a more or less important nature was transacted. Though the state of the public health showed no emergency demanding exceptional activity on the part of the Board, there have, from time to time, been questions arising requiring its attention. Several inspections were made, mostly in response to complaints, and in general the injunctions to abate nuisances and correct insanitary conditions were cheerfully complied with; yet I find that, as in other matters of public interest, there are a few so indifferent to the general weal that it would be in the interest of public health to give them an awakening in the shape of prosecution. In my casual rounds I have made it a point to inspect the wells at several school houses, and have found many of them not up to the mark, either as to purity of water or the means of preserving it pure, and I think trustees should be admon-

ished to pay more attention to the subject. The resolution passed at an early meeting this year and reconsidered at a later one, regarding the institution of a general vaccination, has not yet borne fruit for a very sufficient, though not very satisfactory, reason, that the Board has not adequate funds at its command.

Of diseases arising from insanitary conditions, and of contagious or infectious diseases themselves, we have heard comparatively little during the year, though from Linwood and Hawkville a few cases of diphtheria and typho-malarial fever have been reported, in all of which, I am satisfied, due precautionary measures were employed and with satisfactory results. In the main, however, I am pleased to be able to congratulate you on the favourable comparison the present year makes with former years. There is not now any contagious or epidemic disease existent in the jurisdiction of this Board so far as I can ascertain. I cannot close this report without referring in favourable terms to the cheerful compliance of the medical practitioners in observing the rule requiring them to report contagious cases in their practice.

WM. MORTON, M.D.,
Medical Health Officer.

WESTMINSTER.

Chairman's Report.

In presenting the annual report of the Local Board of the Township of Westminster, I beg to state that this township has been very free from epidemic disease during the past year, wonderfully so considering that London South, which is included in this township, has 3,000 inhabitants in a comparatively small space, and is without any regular system of either sewers or waterworks.

This summer we employed an active constable as Deputy Sanitary Inspector, and made a thorough inspection of all the premises in London South, with the object of putting the water closets especially in as good a state as possible, as we had received many complaints concerning them. We feel that it is impossible to provide an efficient remedy as long as a populous neighbourhood use only privy pits for the disposal of all their sewage. But we believe we effected a great improvement, as the people recognized the necessity of the inspection and generally obeyed orders as to the remedies required.

There were more deaths than usual this year, principally from diseases of the respiratory organs in the first quarter of the year. Our township council has willingly paid whatever was required for the expenses of the Board.

J. T. COUGHLIN,
Chairman.

WHITBY, EAST.

Secretary's Report.

The Board has, during the year, investigated all complaints laid before it, but this being a rural municipality containing no large villages, the cases of nuisances claiming inquiry have not been numerous.

While there have been a good many cases of contagious and infectious diseases such as typhoid fever, diphtheria, etc., they have in every instance been of an isolated character and have never approached anything like an epidemic.

We find the people willing to co-operate with the Board whenever cause of action was pointed out to them, compulsion being seldom or ever resorted to. Typhoid fever of a mild type has been more prevalent than formerly.

WM. PURVES,
Secretary.

 WHITCHURCH.
Chairman's Report.

We feel thankful that infectious diseases have not made their appearance in the Township of Whitchurch to any extent during the present year.

It is true that we have had isolated cases of typhoid and scarlet fever, and some cases of diphtheria, but on enquiry we learned that every precaution to prevent the spreading of said diseases were taken by those in attendance.

On account of the dreaded disease, smallpox, having made its appearance in the Village of Stouffville and the Township of North Gwillimbury, the Chairman of the Board of Health for the Township of Whitchurch called the Board together on the 2nd day of November, and after due consideration a resolution was passed appointing a committee to take immediate action in case it made its appearance within our limits; and, also, if they considered it advisable, to ask the council to order general vaccination. Our Medical Health Officers have not been required to take any action in their official capacity during the year.

CHAS. J. BRODIE,
Chairman.

 WILLIAMSBURGH.
Secretary's Report.

The Local Board of Health of the Township of Williamsburgh in submitting their report for the year 1888 to the Provincial Board of Health, take much pleasure in stating that their duties have been quite nominal. The sanitary condition of the township appears to have been good, and the general health unexceptional. The Board have had no knowledge of the presence of any contagious or infectious disease of a malignant character. There has been no appointment of a Medical Health Officer made, because there did not appear to be any necessity for such appointment.

G. C. TRACY,
Secretary.

 WILLOUGHBY.
Chairman's Report.

It is very gratifying to me, as Chairman of your Local Board of Health, to be able to report so favourably on the sanitary condition of the municipality.

In the earlier portion of the year some complaints were made in reference to a slaughter-house in the north-western part of the township, and the Sanitary Inspector was instructed to attend to it, which has been done with beneficial results.

There have been a few cases of diphtheria with one death, but I am pleased to say the sanitary condition of the township has seldom been more satisfactory than at present.

GEORGE WENNER,
Chairman.

 WILMOT.
Medical Health Officer's Report.

In submitting to you the annual report on the sanitary condition and health of the township, it affords me much pleasure to be able to state that we have been free from any serious outbreak of contagious or epidemic diseases, and those that have occurred have

been of a mild type. Several cases of typhoid fever have been reported, but no deaths have occurred from it; and several of diphtheria, with only one death. In the early months of the year we had an epidemic of measles, and a fair estimate must have furnished 100 cases. Out of this large number but one death is reported. Cases of bronchitis among children were reported, although no note was made by the physicians as to whether the measles predisposed to the bronchitis; it is presumable that such was the case.

It is a matter of much satisfaction to note that the efforts of the Provincial and Local Boards of Health are being appreciated by the community, and that our citizens are becoming impressed with the importance of the sanitary arrangements and care in respect to wells, cisterns and privies, the disposal of garbage and manure heaps, the supervision of slaughter-houses, cheese-factories and schools, the attention to ventilation, heating and drainage in buildings, and to isolation and disinfection in cases of contagious diseases. I have to refer to one practice that is not receiving the attention it should in this township, and which is now recognized as a fruitful source of ill-health, viz., the storing of vegetables and roots in the cellars of dwelling houses, some of which is certain to decay and poison the surrounding atmosphere, which, rising into the living rooms, is breathed by the inmates to their detriment. A better plan, I believe, is to have an out cellar, or brick or concrete building detached from the house for this purpose, and this course is adopted in many parts of the Province.

W. R. NICOLS, M.D.,
Medical Health Officer.

WOOLWICH.

Medical Health Officer's Report.

My duties commenced very early in the year, having been called by the Trustees of School Section No. 3 to examine the school on January the 24th. On the 30th the first meeting of the Board took place at St. Jacobs. On February 7th one of our butcher's premises needed looking after, though the weather was still cold. On May the 7th the second Board of Health meeting was held at Winterbourne, at which I received instructions to issue the annual notices, and to have same posted up at all post-offices and schools. During the summer I visited all the school-houses in the township, and one on the town-line; several of them had small matters which needed attending to, and at one the water was very bad. I had some trouble with one slaughter-house, and though it looked as if kept in good shape, the smell, even at a long distance, was not pleasant. The last meeting of the Board was at St. Jacobs on October 10th. The Board at this meeting gave permission for the starting of a glue factory in St. Jacobs, and also instructed me to put vaccination notices in five papers published in the county, which was done. Another meeting of the Board came near being held to settle a dispute between two parties as to the position of a stable, but the matter was arranged by the Chairman and Secretary to the satisfaction of both parties. No epidemics this year, and what is not so good, no vaccination. A few cases of diphtheria, and two deaths; a few of typhoid, and one death. The total deaths in township, thirty-four, which is not seven per thousand of population, is a very good showing. I would suggest that if the Medical Health Officers were allowed to bring in their reports nearer the end of the year they would be more complete.

W. J. PASMORE, M.D.,
Medical Health Officer.

YARMOUTH.

Secretary's Report.

I have the honour to submit the fourth annual report of the Local Board of Health of the township of Yarmouth.

The Board met four times during the year. They enforced regulations for keeping slaughter-houses in proper sanitary condition, and compelled the removal of a large deposit of apple pumice of a cider factory, which was considered unhealthy to the children attending a school adjoining.

No measures have been taken to put the provisions of regulation 8 of the smallpox regulations in force, the Medical Health Officer having no apprehension of danger.

K. W. McKAY,
Secretary.

YONGE, FRONT OF.

Chairman's Report.

We have had four complaints concerning the accumulation of filth detrimental to the public health. The Board took immediate action and had the same removed. There were six cases of diphtheria, of which five cases were fatal. Seven cases of scarlet fever, one fatal.

We are pleased to report that the sanitary condition of the municipality so far as we know up to the present, is in a good condition.

The Board is also pleased to report that the public are fast learning to appreciate the benefits arising from the vigilance pursued and care taken by the Local Board of Health, and that in a very short time when their duties are more fully known, their efforts will be more fully endorsed.

VINCENT BUELL,
Chairman.

YORK.

Medical Health Officer's Report.

The year has been marked by an absence of epidemic diseases. While neighbouring municipalities have been suffering from the ravages of diphtheria, typhoid fever, scarlet fever and small-pox, we are in a condition to congratulate ourselves upon a comparative immunity from these diseases. To be sure we have had isolated cases of contagious diseases, but not in sufficient numbers to designate them epidemic. What few cases have come under my notice have been easily traceable to their origin. The chief factors in their production have been the abominable privy-pit and the night soil nuisance.

In regard to the former I think such legislation should be demanded as to prevent its future use. It seems impossible to educate our rural population to the dangers of its use, and I am convinced that it will never be abolished without compulsory measures. It is time also we should recognize the danger which lurks in the use of night-soil as a fertilizer. Situated as we are contiguous to a large city where epidemics prevail throughout the year, the danger from this source is one of particular importance to us. The township of York should not allow itself to become a dumping-ground for the disease-laden sewage of the City.

I am sorry in conclusion to be forced to mention what I look upon as a reproach to the medical men in our jurisdiction,—that with one or two exceptions they have neglected to report the cases of contagious diseases which occur in their practices.

H. E. WEBSTER, M.D.,
Medical Health Officer.

YORK.

Secretary's Report.

Your Secretary, in compliance with sec. 24 of the Health Act, 1884, would respectfully report for the year 1888 as follows :—

(1) The Board was duly organized in the month of January ; two Sanitary Inspectors were appointed, one for the eastern and one for the western portion of the township, Young Street being the dividing line ; in the month of April a Medical Health Officer was appointed. During the year the Board held ten meetings, at each of which our Inspectors were present and gave a written or verbal report of the work done by them in their respective districts, and of the sanitary condition of the same.

(2) I am pleased to report that the sanitary condition of the township during the year has been very satisfactory to the Board ; no epidemics or contagious diseases are known to have existed, with the exception of a few isolated cases of diphtheria among children. I would also state that only two cases of malarial fever have been reported or known to the Board during the year.

(3) Our proximity to the City of Toronto has imposed upon our Sanitary Inspectors and the members of the Local Board individually a very large amount of vigilance in order to prevent the transportation of night-soil and garbage into the township from the city, contrary to the rules and conditions of the Board.

(4) The inspecting of slaughter-houses and piggeries has taken up a considerable portion of the time of our Inspectors, but their work has been more pleasant than formerly owing to the fact that the powers vested in the Board are more generally known and recognized, and the residents of the municipality are becoming more alive to the benefits to be derived from the enforcement of sanitary laws, and as a rule meet readily any suggestions or willingly obey any orders which they receive from the Health Officers or members of the Board, for their own benefit and protection and the sanitary welfare of the community.

W. A. CLARKE,
Secretary.

ZONE.

Medical Health Officer's Report.

In making out this my annual report for the township of Zone for the present year, I may say that I think we have great cause to be thankful for the health and prosperity of the township. Since my last report there has been but one case of typhoid fever reported to me during the year, and that terminated favourably. None came under my personal observation ; nither has there been any cases of scarlet fever, diphtheria or other contagious disease reported to me. I think I may safely say that the sanitary condition of the township of Zone is second to no other municipality in the County of Kent.

R. D. SWISHER, M.D.,
Medical Health Officer.

ZORRA, EAST.

Secretary's Report.

In reply to your circular I would state that the Sanitary Inspectors of the municipality have made a thorough examination of the school houses and yards, slaughter-houses and cheese factories, and with but two exceptions found everything in a good sanitary condition. One slaughter-house and one school yard were found not just right, but was, upon notice of Inspector, cleaned up at once. There has only been two cases of typhoid fever within the municipality this year so far. The Medical Health Officer states that he has no further report to make, as he has not been called upon during the year on any occasion.

D. W. McKAY,
Secretary.

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